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## DEPARTMENT OF THE INTERIOR BUREAU OF MINES

JOSEPH A. HOLMES, DIRECTOR

# ANALYSES OF COALS

IN THE UNITED STATES

VITH DESCRIPTIONS OF MINE AND FIELD SAMPLES COLLECTED BETWEEN JULY 1, 1904, AND JUNE 30, 1910

N. W. LORD

WITH CHAPTERS BY

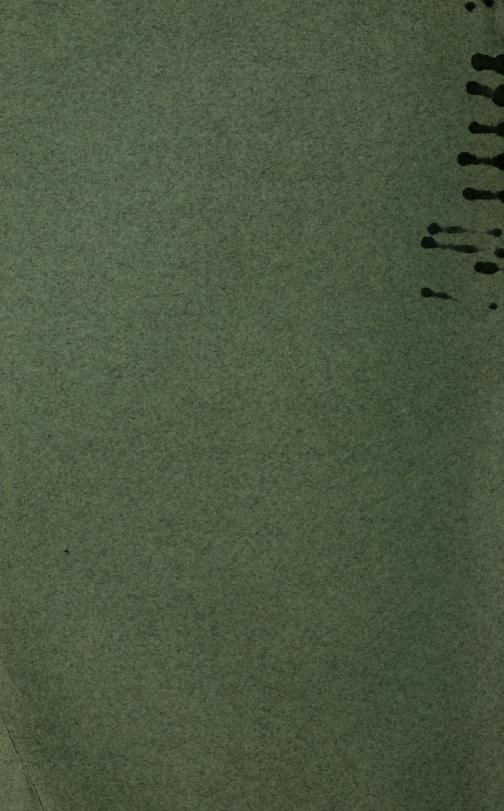
I. A. HOLMES, F. M. STANTON A. C. FIELDNER, AND SAMUEL SANFORD

Part I.—Analyses

ENGIN STORAGE



WASHINGTON GOVERNMENT PRINTING OFFICE



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Part I.—Analyses



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#### NOTE.

This report consists of two parts, namely:

Part I. Analyses of coals in the United States (pp. 1-321).

Part II. Descriptions of mine and field samples collected between July 1, 1904, and June 30, 1910 (pp. 323-1158).

A general table of contents, a preface, and an introduction appear in Part I. Part II contains an index, a list of Bureau of Mines publications, and a bibliography.

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#### PREFACE.

By Joseph A. Holmes.

The establishment on July 1, 1910, of a National Bureau of Mines on a permanent basis, and the transfer, for continuance under this bureau, of the fuel investigations organized and conducted, 1904 to 1910, under the United States Geological Survey, were considered as making a suitable occasion for assembling for publication in convenient form a description of those investigations, the methods followed, the equipment used, and the results obtained. The larger part of the data was assembled in three reports, of which the first (Bulletin 13), on the fuel tests made in gas producers, and the second (Bulletin 23), on the fuels tested in boiler furnaces, have been published. The present report, which gives the chemical analyses of the coals tested and a statement regarding the mines and beds from which these coals were collected, is the third of the group.

Much of the material has already been published in various bulletins of the Geological Survey, but most of those bulletins are now out of print and some of the material has not yet been published. Hence, it was deemed wise to bring together all the information, both published and unpublished, that may have special value and to publish it in convenient form. A résumé of certain additional data covering the briqueting of the fuels tested will be similarly segregated and

published in a future bulletin of the Bureau of Mines.

When Congress authorized this work in 1904, the Director of the United States Geological Survey placed its supervision under a committee consisting of E. W. Parker and M. R. Campbell, of the Geological Survey, and the present writer. This committee selected as its consulting experts Prof. Robert H. Fernald, then of the mechanical-engineering department of Washington University, St. Louis, to take charge of the gas-producer investigations; Prof. Lester P. Breckenridge, then of the mechanical-engineering department of the University of Illinois, to take charge of the boiler and steaming investigations; and Prof. Nathaniel W. Lord, then of the chemical department of the Ohio State University, to take charge of the chemical work.

In planning the fuel investigations, the committee found that there were limitations as to equipment available; no satisfactory methods

had been developed; and few experts had been adequately trained for such investigations. Nevertheless, it was believed that, if properly carried on, the results of these investigations would have a large and permanent value. Therefore, the coals used in the investigations were selected and collected in such manner as to insure their being representative of actual and extensive resources.

During 1905 and subsequent years the administrative supervision of these investigations was assigned by the Director of the Geological Survey to the present writer, but the technical advice of Profs. Lord, Breckenridge, and Fernald was followed throughout, and the administrative plans developed during the work of 1904 so largely by Messrs. Parker and Campbell, with whom the writer was associated, have continued to serve as a general guide.

### ANALYSES OF COALS IN THE UNITED STATES.

By N. W. LORD.

#### INTRODUCTION.

#### SIGNIFICANCE AND VALUE OF ANALYSES OF COAL.

The value to an engineer, power-plant superintendent, or coal dealer of the chemical analysis of a sample of a given coal is a matter that has given rise to much discussion. The general weight of opinion seems to be that an analysis is often of the highest value, and that the time and labor involved in making it are well spent. However, it is clear that analyses are of greater value to some engineers or users of coal than to others; and that, at the present time, they can not entirely supplant in all cases the information to be obtained from carefully conducted tests in boiler furnaces, gas producers, etc., but supplement such information, when the latter is obtainable.

A large and increasing proportion of the bituminous coal consumed in the power stations and the larger manufacturing plants of the country is now being purchased under specifications based on chemical analyses and calorimetric determinations of heat units. In many of these cases, however, specifications are applied to coals whose general behavior in the furnace is already known and are used with a view to determining whether, or how closely, the quality of the various deliveries of coal received from time to time compares with the percentages of moisture, ash, sulphur, volatile matter, and the heating value specified in the contract. The large increase in the number of chemical analyses now being made throughout the country in connection with the purchase, under some form of specification, of coal for power plants is in itself testimony by the engineers in charge of those power plants of the value of such analyses.

The cost of shipping coal a considerable distance in sufficiently large quantities for practical boiler tests and the difficulties and delays incident to the making of such tests while a power plant is in active operation have encouraged the use of chemical analysis as a quicker and cheaper means of determining the relative values of different coals and of different shipments of the same coal. The acceptance of and payments for deliveries of coal to various power and heating plants operated by the Government in different parts

of the country are now largely based upon chemical analyses and calorimetric determinations.

In the testing of coals in the Government service the chief difficulties in the way of accepting or rejecting untried coals on the basis of chemical analyses alone have proved to be as follows:

(1) An ordinary analysis of a coal shows the percentage of ash but does not indicate the extent to which this ash may fuse or slag on the grate bars of the furnace, and thus seriously interfere with the rate and completeness of the combustion. Though progress has been made toward the determination of the liability to clinker, through a study of the composition of the ash, the results obtained are not as yet altogether satisfactory.

(2) There seems to be a variability in the heating value of the volatile matter in the coal, which is not clearly indicated by the percentage of the volatile matter, as determined either by the usual

methods, or by the ordinary calometric determinations.

(3) The caking of the surface coal in the fire box appears to interfere with the draft, and hence, with the rate and completeness of the combustion, and therefore impairs the fuel value of the coal to a degree that is not ordinarily indicated by chemical analyses.

The Bureau of Mines has endeavored to ascertain the opinions of some of the most prominent fuel engineers in this country, and extracts from the statements of several of them are given below.

W. M. F. Goss, Urbana, Ill., dean of the college of engineering of the University of Illinois, states:

The engineer each year is becoming more and more a scientist. Many matters which he has hitherto left to chance are now carefully investigated. In the use of fuels the engineer now seeks to construct his furnace and to arrange its heat-absorbing surfaces with reference to the peculiar characteristics of the fuel which is to be burned. If he understands the composition of his fuel and if he is free to proceed with the construction of his furnace with reference thereto, efficient and smokeless combustion will result. It is for this reason that data showing the analyses of typical fuels in every part of the country will prove of inestimable value in the future work of the engineer.

W. L. Abbott, Chicago, Ill., chief operating engineer of the Commonwealth Edison Co. of Chicago, Ill., expresses the following views:

It is usually the case that for any particular market the choice of coal is limited by quality and freight rates to one or two fields, throughout which the character of the coal in the bed is comparatively uniform, and any variation which may be found in the shipments at different times or from different mines is due to difference in method or care in preparation. The value, therefore, of having at hand a chemical analysis of the coal from any particular district is to have a standard to which future analyses may be compared to determine whether or not the coal is being prepared as carefully as it should be.

Such a tabulation of coal analyses is also of value to the consumer, as it enables him to determine to what other fields he should turn next for his coal if the supply from the field from which he usually gets his coal is interrupted.

The coal supply of the country involves an expenditure of hundreds of millions of dollars annually, and its importance is such as to warrant the most careful study of all its features. The basis for such a study is a knowledge of the chemical composition of the coal from each location and bed, and as the expense of obtaining such information is infinitesimal compared with the importance of the subject to which it relates, this work should be done with the greatest detail and care.

J. F. Deems, New York, general superintendent of motive power department of the New York Central lines, says in regard to the value of chemical analyses:

Where more than one kind or grade of coal is obtainable, there is little doubt that a chemical analysis is of value to any consumer, and especially to a large consumer, for the information obtained from the analysis has a large part in enabling him to make a choice of the coal. In the case of certain purposes for which coal is used, it seems to me accurate chemical analyses of the coals offered for use are indispensable.

L. P. Breckenridge, professor of mechanical engineering, Sheffield Scientific School, Yale University, expresses his views as follows:

The value of a correct chemical analysis of the various coals of the United States is of great importance to designing and operating engineers and to the fuel departments of railroads, steamship companies, and large industrial concerns. These analyses, taken with the large number of available economy tests on boilers and gas producers, make it possible for the engineer to determine in advance what fuels he may expect to burn with the greatest economy in any given locality. The wide variations in composition and heat values of coals distributed through the various States make such analyses indispensable for the designers of fuel-burning furnaces for boilers, gas producers, or metallurgical industries.

The analyses published in this report cover samples of coal collected in many different parts of the country with unusual care by experienced men, in such manner as to make them representative of extensive beds of coal. These samples were forwarded to the laboratory under favorable conditions and carefully analyzed by chemists trained in this special line of work. When many of these analyses were made it was not expected that the results would be published; but the calls from all parts of the country for this information have been so numerous that publication of the analyses is deemed advisable. It is hoped that the analyses as printed in this report will be found useful not only by officers of the Government in making purchases of fuel for public use, but also by engineers and chemists and by all persons who buy or sell coals purchased or sold in the United States, and that they may prove of especial value in connection with the export of coal to other countries.

#### ACKNOWLEDGMENTS.

The compilation of the analyses presented in this volume was done for the most part by men connected with the coal-inspection service of the United States Geological Survey and of the Bureau of Mines, under the direction of J. S. Burrows and G. S. Pope. A. C. Fieldner had charge of checking the analyses. M. R. Campbell, of the Geological Survey, gave valuable aid.

#### SCOPE OF THIS BULLETIN.

On July 1, 1910, the fuel-testing investigations that were being carried on by the technologic branch of the United States Geological Survey were transferred to the Bureau of Mines. Up to that date 10,000 samples of coal had been analyzed. Many of the analyses have been printed in various publications of the survey and of the Bureau of Mines. This bulletin presents analyses of mine and car samples only, and does not contain the analyses of the various samples taken in the course of steaming, gas producer, coking, washing, and briquetting tests. The analyses of these test samples may be obtained by consulting the publications dealing with fuel testing that have been issued by the Bureau of Mines and the Geological Survey. A list of these publications is given at the end of part II of this report.

#### COLLECTION OF SAMPLES.

The samples of coal mentioned in this report may be separated into two classes: (1) Those collected in mines by engineers connected with the Government fuel-testing plants or taken from cars after delivery at the fuel-testing plants, and (2) samples collected by geologists of the Geological Survey in the course of investigations in the various coal fields of the country.

The method of collecting mine samples that is practiced by the Bureau of Mines has been described in one of the bureau's publications, and is summarized in part II of this bulletin. It involves selecting a representative face of the bed to be sampled; cleaning the face, making a cut across it from roof to floor, and rejecting or including impurities according to a definite plan as these are included or excluded in mining operations; reducing the gross sample, by crushing and quartering, to about 2 pounds; and immediately sealing the 2-pound sample in an air-tight container for shipment to the laboratory.

It is expected that in future work 3-pound samples will be collected and sent to the laboratory for analysis.

The carload lots of coal shipped to the fuel plants were sampled by taking definite quantities of coal at regular intervals from a car as it was unloaded, and by reducing to convenient size, about 2 pounds, the gross samples thus obtained.

#### ANALYSIS OF SAMPLES.

The methods used in analyzing the samples of coal and the significance of the results are discussed by Stanton and by Fieldner in the chapters that follow. The essential fact to be remembered is that

a Technical Paper 1, The sampling of coal in the mine, by J. A. Holmes. 1911. 12 pp.

the coal received at the laboratory is air dried at a temperature slightly above that of the room, and this air-dried coal is analyzed. Therefore the values stated in the table of analyses (pp. 33 to 321) for coal "as received," "moisture free" and "moisture and ash free" were not obtained directly, but were calculated from the values obtained by the analyses of the air-dried coal.

#### RELATIONS OF MINE SAMPLES TO COMMERCIAL SHIP-MENTS.

The relation between a mine sample of coal and the average of the coal shipped from the same bed in the regular course of production is a matter that received much attention during the course of the work covered by this report. Some results of a comparison of the analyses of samples collected in the progress of the work at St. Louis were presented in a bulletin of the Geological Survey, a but the work done since then does not tend to support the view, expressed in that bulletin, that by sampling according to a prescribed method such a definite relationship can be established between mine samples and commercial shipments that by the use of a factor the chemical constituents of the commercial output from a given bed, or even from a given region, may be calculated.

Experience has demonstrated that mine samples carefully taken according to prescribed methods are apt to indicate coal of slightly better grade than the average commercial shipments from the same mine.

The reason for this difference is easily found. The miner, being paid by the ton, shovels up the coal in a hurry, and is liable to load out impurities that the trained collector would be inclined to exclude from a mine sample. Moreover, if the roof chips and falls on exposure, or if the floor comes up in flakes under the shovel, impurities that are not from the coal bed are sent to the surface with the coal. The proportion of the impurities separated at the surface depends on the closeness of the tipple inspection, which may vary with trade conditions, and on the efficiency of whatever cleaning devices are employed.

The fact that mine samples are apt to indicate coal of slightly better grade than average commercial shipments should be borne in mind by operators and sales agents when bidding on contracts that specify the ash content, heating value, or other characteristics of the coal to be delivered, and impose a penalty on the delivery of coal below the standard named. Bids on such contracts should not be based solely on mine samples but on samples from shipments of some size, mined and prepared under conditions that can be maintained during the life of a contract.

#### LABORATORY METHODS.ª

By Frederic M. Stanton.

#### INTRODUCTORY STATEMENT.

A laboratory for analyzing fuels was organized by the United States Geological Survey in 1904. This laboratory was first located in the metal pavilion at the Louisiana Purchase Exposition, St. Louis, Mo. At that time it was a part of the Government fuel-testing plant, and was designed for making chemical analyses of the fuels tested at the plant.

The laboratory was equipped under the direction of N. W. Lord, professor of metallurgy in Ohio State University, Columbus, Ohio. E. E. Somermeier, assistant professor of metallurgy in Ohio State University, had local charge of the laboratory until September, 1905. He then resumed his university duties, but still retained general supervision of the work of the laboratory, which was under the local charge of F. M. Stanton. In the summer of 1907 the laboratory came under the immediate charge of the technologic branch of the Survey and was moved from St. Louis, Mo., to the Carnegie technical schools, in Pittsburg, Pa. Prof. Lord was retained as consulting chemist and F. M. Stanton was given charge of the laboratory.

In 1908, the laboratory was moved to the grounds of the United States Arsenal at Fortieth and Butler Streets, Pittsburg, Pa., where one of the arsenal buildings was remodeled to accommodate it. In July, 1909, A. C. Fieldner was placed in local charge of coal analysis. As many as 10 chemists have at times been at work simultaneously.

#### PERSONNEL.

The following list includes the names of all who had been directly connected with the chemical laboratory up to July 1, 1910: John Birdsong, J. H. Bauer, D. I. Brown, G. A. Burrell, John Crawford, jr., A. T. Davenport, E. M. Dawson, jr., Fred Deering, C. D. Dunnington, Colby Dill, J. D. Davis, John Dalton, D. J. Demorest, A. C. Fieldner, C. B. R. Fitzwilliam, C. K. Glycart, Max Hecht, S. S. Heide, R. T. Hapgood, Harold Isenberg, W. W. Karnan, Prof. N. W. Lord (director of laboratory), Joseph Millenson, John McCalip, C. J. Monahan, B. G. Macintire, W. L. Maclaskey, L. L. A. Moran, F. K. Ovitz, J. W. Peters, Charles Rowlands, John Sherrer, E. E. Somermeier, F. M. Stanton, W. E. Surbled, G. O. Spitler, Roy Steward, E. Sohn, John

a For a discussion of details and modifications developed since the compilation of this report, see Technical Paper 8, Bureau of Mines, Methods of analyzing coal and coke, by F. M. Stanton and A. C. Fieldner, 1913.

F. Travis, Edward Thomas, R. E. Vennum, K. M. Way, Paul Wilson, E. C. Waters, G. E. Webster, R. C. Willis, jr., Robert Zaloudek.

#### AIR DRYING OF SAMPLES.

The coal samples are received at the laboratory in cans which contain about 2 pounds of coal. The cans are fitted with a screw cap and are made practically moisture tight by wrapping a piece of electrician's tape around the joint between the cap and the top of the can. The coal is crushed to pass a screen with \frac{1}{2}-inch mesh before it is shipped to the laboratory. Immediately after the receipt of the sample the coal is removed from the container and weighed; then it is spread out in a 9-inch tin cake pan and dried in a large drying oven at a temperature of 30 to 35° C. A current of warm air is drawn through the oven by means of an ordinary 8-inch electric fan mounted in an exhaust flue on top of the oven. The sample is dried until the loss in weight between two successive weighings made 6 to 12 hours apart does not exceed 0.2 per cent. The primary purpose of this air drying of samples before analysis is to get the moisture content of the sample reduced to such a condition that there will not be rapid changes in the weight of the sample during the course of the analysis. The air-drying loss is not regarded as an accurate determination; it simply shows that the sample lost so many per cent of moisture before it came to a condition of equilibrium with respect to the moisture in the air of the room.

After being air-dried, the sample is put through a pair of 4-inch rolls, which reduce it to about 10 mesh: it is then quartered through riffles until the portion left weighs about 400 grams. This 400-gram portion is placed in the porcelain jar of an Abbe ball mill, and is sealed air and moisture tight by a rubber gasket under the lid. The mill is revolved at the rate of 1 revolution per second for about 35 minutes depending upon the character of the sample; it is then opened and the sample is dumped into a 60-mesh sieve that has a cover and a pan bottom attached. All the sample (400 grams) is put through this 60-mesh sieve and is then thoroughly mixed.

About 60 grams of the sample is transferred to a wide-mouth bottle having a rubber stopper and labeled with the laboratory number and the date. This 60-gram portion represents the 2-pound sample received and is ready for chemical analysis.

The samples from the steaming, gas-producer, coke-oven, and other tests are received at the laboratory in covered galvanized-iron cans containing about 40 pounds of coal. Each of these samples is reduced to ½-inch mesh by being passed through a "chipmunk" jaw crusher, and after being quartered to a portion weighing about 2 pounds, is treated exactly as a mine sample received in a 2-pound can.

#### METHODS OF ANALYSIS.

The methods employed in analyzing coals during the period covered by this report were essentially those adopted and recommended by the American Chemical Society. A few modifications in details of manipulation have been found desirable. Reference to these is made in United States Geological Survey Bulletin 323 and in Technical Paper 8, Bureau of Mines. The methods employed at present in the chemical laboratory of the Bureau of Mines are as follows:

#### MOISTURE AND ASH.

A 1-gram sample of the coal (60 mesh) is placed in a weighed porcelain crucible and heated one hour at 105° C. in a constant-temperature oven through which a current of dry, preheated air is circulated. The sample is then covered, removed from the oven and cooled in a desiccator over sulphuric acid. The loss in weight is counted as moisture.

The oven is a double-walled copper cylinder. The space between the outer and inner wall is filled about two-thirds full of a solution of glycerin in water, the proportions of water and glycerin being such that the boiling solution maintains a temperature of 105° C. in the oven. The specific gravity of this solution is 1.19 at 15° C. A return condenser keeps the concentration nearly constant. A current of air is dried by being drawn through sulphuric acid and is preheated by being passed through a copper tube around the oven between the outer and the inner wall. This dry air is forced through the oven at a rate sufficient to replace the total volume of air 8 to 10 times in one hour. This form of bath was designed by Prof. N. W. Lord. Practically no trouble is experienced in maintaining a constant temperature with it.

The porcelain capsule, after the moisture determination, is placed in a muffle furnace and slowly heated until the volatile matter in the sample is driven off. The heating is done slowly, to avoid coking and thus making the sample difficult to burn; furthermore, if the coal is high in volatile matter and is rapidly heated, the gas generated has a tendency to explode within the capsule, thus causing the loss of particles of the ash. The ignition in the muffle is continued, the ash being occasionally stirred, until all particles of carbon disappear. The crucible containing the ash is then cooled in a desiccator and weighed. The crucible and ash are again placed in the muffle, heated for half an hour, cooled in a desiccator, and weighed. If the change in weight is less than 0.5 milligram, the weight is considered as constant and the weight of the crucible is deducted from the last weighing. If the change is greater than 0.5 milligram, the ash is ignited again for 30 minutes and weighed, and the process is repeated until the variation in weight between two successive ignitions is 0.5 milligram

or less. The weight of the crucible and ash, minus the weight of the crucible, is taken as the weight of the ash.

In the analysis of coals high in iron some difficulty is often experienced in igniting to constant weight because of the oxidation and

reduction of iron compounds.

Ash, as determined by the above method, represents the ignited mineral matter in coal. This mineral matter consists largely of hydrated silicates, carbonates, sulphides, sulphates, etc., of aluminum, iron, calcium, magnesium, and other bases; all of these compounds lose considerable weight upon ignition. The alterations in the mineral matter during the determination of ash cause corresponding variations in the oxygen percentage, because the latter is always determined by difference.

#### VOLATILE MATTER.

A 1-gram sample is weighed into a 30-c. c. platinum crucible with a close-fitting cover. It is essential that the crucible be kept perfectly clean and well burnished. The crucible is heated for seven minutes upon a platinum triangle over a Bunsen burner flame 20 centimeters high.<sup>a</sup> The crucible should be placed in the triangle so that the bottom is 6 to 8 centimeters above the top of the burner. The flame is surrounded by a jacket to prevent the disturbing action of drafts. After being heated seven minutes the crucible is cooled and weighed. The loss in weight represents volatile matter plus moisture. Lignites high in moisture must be heated very gradually until the moisture has been driven off in order to avoid losses from material thrown out of the crucible by the rapid escape of moisture.<sup>b</sup>

A number of experiments have been made in the laboratory of the Bureau of Mines to ascertain the accuracy of the official method for the determination of volatile matter and the conditions of manipulation that may vitiate the results.<sup>c</sup> Some of these results are summarized as follows: Two laboratories, though they both use the official method, are liable to make volatile matter determinations that differ 2 per cent. The percentage of volatile matter obtained from the same sample of coal varies with the temperature and rate of heating. This is not sufficiently defined by height of flame. Temperatures ranging from 760 to 890° C. may be attained with a 20-centimeter natural gas flame, by varying the gas pressure from 1 to 13 inches of water; variations of 2 per cent in volatile matter determinations are thus produced. Difference in type and size of burner influence results from 0.3 to 1.5 per cent. Polished crucibles

a For the use of a Meker burner, and other refinements in the volatile matter determination, see Technical Paper 8, Bureau of Mines, 1913.

b For a discussion of such losses, see U. S. Geol. Survey Bulletin 323, p. 36.

c Fieldner, A. C., and Davis, J. D. Some variations in the official method for the determination of volatile matter in coal. Jour. Ind. and Eng. Chem., July, 1910, p. 304.

become hotter and yield about 1 per cent more volatile matter than

dull gray ones.

Laboratories using natural gas are apt to get results on volatile matter that are considerably lower than those obtained by laboratories using coal gas, unless the following precautions are observed:

1. Gas should be supplied to the burners at a pressure of not less

than 10 inches of water.

- 2. When natural gas is used burners admitting an ample supply of air should be used.
- 3. Gas and air supply should be regulated so that a flame with a short, well-defined inner cone is produced.
- 4. The crucibles should be supported on platinum triangles and kept well polished.

#### NITROGEN.

Nitrogen is determined by the well-known Kjeldahl method. One gram of the coal sample (60 mesh) is boiled with 30 cubic centimeters of concentrated sulphuric acid and 0.5 gram of mercury until all particles of coal are oxidized and the solution is nearly colorless. Crystals of potassium permanganate are added, a few at a time, until oxidation is completed. The solution is cooled and then diluted with about 200 cubic centimeters of water. Forty cubic centimeters of potassium sulphide solution, 80 grams per liter, is added to precipitate the mercury. The ammonia is distilled from the solution, after the addition of an excess of sodium hydroxide, until about 200 cubic centimeters of distillate has passed over into the Erlenmeyer flask containing the standard acid. The ammonia is collected in a measured amount of this acid, and the excess of acid is titrated with standard ammonia solution (20 c. c. NH<sub>4</sub>OH solution = 10 c. c. H<sub>2</sub>SO<sub>4</sub> solution = .05 gram nitrogen), using cochineal as an indicator. A small quantity of granular zinc added to the contents of the flask during the final distillation of the alkaline solution prevents bumping, and the addition of a piece of paraffin the size of a pea prevents frothing.

#### SULPHUR.

Sulphur is determined by the Eschka method. Eschka mixture is made by thoroughly mixing 2 parts of light calcined magnesium oxide (MgO) with 1 part of anhydrous sodium carbonate (Na<sub>2</sub>CO<sub>3</sub>).

A 1-gram sample of the coal (60 mesh) is thoroughly mixed in a 30-cubic-centimeter platinum crucible with about 2 grams of Eschka mixture, and about one-half gram of Eschka mixture is spread over the top of the sample to form a cover. The crucible is placed on a triangle in a slanting position, and the mixture is burned out over

an alcohol, gasoline, or natural gas flame. Artificial gas, as a rule, contains so much sulphur that its use introduces an error in the determination, owing to the uncertainty regarding the quantity of sulphur taken up by the mixture. The flame must be very low at the start so as not to drive off the volatile matter fast enough to allow the sulphur to escape unburned. The contents of the crucible should never be heated hot enough to cause the blackening of the cover of Eschka mixture. It is easy to detect a very small loss of sulphur dioxide (SO<sub>2</sub>) by the odor.

After the crucible has been heated slowly and cautiously for about 30 minutes the heat is increased; after the crucible becomes red hot the contents are stirred occasionally and the heating is continued until all black particles are burned. The crucible is then allowed to cool: the contents are transferred to a 200-cubic-centimeter beaker and digested with 75 cubic centimeters of hot water for at least 30 minutes. The solution is filtered into a 300-cubic-centimeter beaker: the residue is washed twice with hot water by decantation, and after transfer to the filter paper, is washed with small quantities of hot water until the volume of solution in the 300-cubic-centimeter beaker is about 200 cubic centimeters. About 4 cubic centimeters (or a slight excess) of saturated bromine water and just enough concentrated hydrochloric acid to make the solution slightly acid are added. The solution is boiled and the sulphur is precipitated as BaSO, by adding 20 cubic centimeters of a hot 5 per cent solution of barium chloride. The solution in the beaker should be stirred continually and the barium chloride solution should be added slowly from a pipette. The chemist should be sure that the solution in the beaker is acid to litmus. The solution and precipitate should be allowed to stand at a temperature just below boiling for at least two hours. They should then be filtered on ashless filter paper and washedfirst with hot water containing 1 cubic centimeter of hydrochloric acid per liter and then with hot water—until a drop of the filtrate gives no precipitate from silver nitrate solution. An excess of barium chloride should be tested for by adding a few drops of sulphuric acid solution to the filtrate. The precipitate is ignited in a weighed porcelain crucible with free access of air; the paper is loosely folded over the precipitate to prevent spattering. The paper should be smoked off gradually, and the final heating should not be above a dull red. After the paper is completely burned, the heating should be continued a few minutes; then the crucible should be cooled and weighed. The weight of barium sulphate times 13.7 equals the per centage of sulphur in the sample.

#### ULTIMATE ANALYSIS.

The ultimate analysis of samples is made in a gas-combustion

furnace, Glazer type, with 25 burners.

The apparatus used comprise duplicate purifying trains, a combustion tube in the furnace, and an absorption train. The purifying trains contain the following purifying reagents arranged in the order of the passage of air or oxygen through them: Sulphuric acid, potassium hydroxide solution, soda lime, and granular calcium chloride. One of the trains is for air and one for oxygen. In the scrubbing bottles containing the sulphuric acid and the potassium hydroxide the air and oxygen bubble through about 5 millimeters of the reagent. Both purifying trains are connected by a Y-tube to the combustion

tube, the joint being made tight with a rubber stopper.

The combustion tube, of hard Jena glass, has an internal diameter of about 15 millimeters, and a total length of 1 meter. The first 30 centimeters of the tube is empty, then comes an asbestos plug (acid washed and ignited); the next 40 centimeters is filled loosely with copper oxide wire; a second asbestos plug, similar to the first, separates this wire from 10 centimeters of fused lead chromate, which is held in place by another asbestos plug 20 centimeters from the end of the tube. The end of the tube is drawn out so that it can be connected to the absorption train by rubber tubing. The absorption train consists, in order, of a Marchand tube filled with granular calcium chloride (to absorb moisture); a Liebig bulb, containing 30 per cent potassium hydroxide solution in which the iron has been oxidized by a little potassium permanganate. A guard tube, containing soda lime and granular calcium chloride, is attached to this Liebig bulb to absorb any carbon dioxide that passes the potassium hydroxide solution, and any water evaporated from that solution. This guard tube is always weighed with the Liebig bulbs. The train is connected to an aspirator which draws the products of combustion through the entire train. The suction is kept constant by a Mariotte flask. A guard tube containing calcium chloride prevents moisture from running back into the absorption train.

Aspirating the gases instead of forcing them through the train has the advantage that the pressure on the rubber connections is from the outside and the connections are kept gas tight more easily. The connections are made as tight as possible. The usual test for tightness is to start aspiration at the rate of about three bubbles of air per second through the potash bulb and then close the inlet for air and oxygen at the other end of the train. If there are not more than five bubbles per minute in the Marriotte flask the apparatus is considered tight.

After the train has been idle some hours, or after any changes in chemicals or connections, a blank is run; about 1 liter of air is aspirated through the train which is heated in exactly the same manner as if a determination were being made. If the change in weight of the Liebig bulb and the tube containing calcium chloride is less than 0.5 milligram the apparatus is in condition for use.

A 0.2-gram sample of coal is weighed into a platinum or porcelain boat. The boat and sample are placed in a glass weighing tube that is closed with a stopper to prevent moisture changes. After the absorption tubes are connected the boat and sample are transferred from the weighing tube to the combustion tube. The latter should be cool for the first 30 centimeters; the copper oxide should be at a bright-red and the lead chromate at a dull-red heat. The boat should be transferred from the weighing to the combustion tube as quickly as possible.

As soon as the boat is in place (near the asbestos plug at the beginning of the copper oxide) the stopper connecting with the purifying train is inserted and the aspiration is started with pure oxygen gas at the rate of three bubbles per second. One burner is turned on about 10 centimeters back from the boat and the aspiration is continued carefully until practically all the moisture is expelled from the sample. The heat is then increased very gradually until all the volatile matter has been driven off. In driving off the volatile matter it is essential that the heat be applied gradually in order to prevent a too rapid evolution of gas and tar that may either escape complete combustion or may be driven back into the purifying train. The heat should be gradually increased by turning on more burners under the empty part of the tube until the sample is ignited; then the temperature can be increased rapidly, but care should be taken not to melt the combustion tube. The aspiration with oxygen is continued for two minutes after the sample ceases to glow, when the heat is turned off and about 1,200 cubic centimeters of air is aspirated. The absorption bulbs are then disconnected and weighed. increase in weight of the Liebig bulbs times 136.36 equals the percentage of carbon. The increase in weight of the calcium chloride tube times 55.55 equals the percentage of hydrogen. The ash in the boat is weighed and carefully inspected for any unburned carbon which would destroy the value of the determination.

#### DETERMINATION OF CALORIFIC VALUE.

The apparatus used is the Mahler bomb calorimeter, which is too well known to require a detailed description. Following is a brief description of the details of operation for determining the heating value of coal.

A 1-gram sample of coal is placed upon an asbestos mat in the bottom of the platinum tray; the terminals of the firing circuit are connected by means of a fine iron wire weighing about 13 milligrams. This iron wire is bent down so as to touch the coal sample in the tray. The tray is then placed in the bomb and the lid screwed down tightly against the lead gasket. Oxygen is forced into the bomb until the manometer recording the pressure within the bomb reads 18 to 20 atmospheres. The needle-point valve is then closed just tight enough to prevent leakage of gas. The oxygen must be admitted very slowly to avoid blowing any particles of coal dust out of the tray. With some extremely light materials, such as peat, it is best to briquet the sample and take a weighed portion of broken briquets instead of powdered material.

The bomb filled with oxygen is placed in the brass bucket, which contains about 2,400 cubic centimeters of distilled water, this bucket having been previously placed in the insulated jacket. The stirring apparatus is adjusted so that it touches neither bucket nor bomb. The thermometer is inserted until its bulb is about 5 centimeters from the bottom of the bucket and is in contact with no metal parts of the apparatus. The terminals of the bomb are connected with wires leading to the switch. After the stirrer has been in motion for about a minute—that is, after the water has been thoroughly mixed—the first reading of the thermometer is taken by means of a telescope attached to a cathetometer. The thermometer is graduated to 0.01° C.

The total time required for a determination may be divided into three periods—the preliminary period, the combustion period, and the final period. The preliminary period usually requires five readings taken one minute apart, or until the rate of change per minute is nearly constant. After taking the fifth reading the current, 75 volts, is turned on for about one-half second. This is the beginning of the combustion period. The first two readings in this period are taken one-half minute apart because the change in ratio is great. The temperature rises to a maximum and then begins to fall; after its rate of fall becomes uniform, the readings are taken every minute for five or six minutes. The final reading of the combustion period is the first reading taken after the rate of fall becomes uniform.

The following figures are from an actual determination and show the method of calculating the result and the corrections applied: Method of calculating from calorimeter readings.
[Sample No. 10743. Weight 1.0000.]

Time.	Readings	3.				
p. m.	°C. 23.874	0.0050 mata	of abanca		26. 463°	
1.54	23.879	0.0058 rate in prelimin			23. 897	
		r	, 1			
.56	23.885			Observed temperature	2, 566	
.57	23.892			change Thermometer correction	. 002	
.58	(T) 23.897	+ 0.0058			2. 564	
	• •		+b0.0027	Heat loss	0.0066	
.58½	24.160	+a0.0049			2. 5706	
.002	21.100	1 010020	+b0.0014	Water equivalent	. 3000	
50	25.430	+a0.0008		Total heat developed (ca-		
.59	20.400	7.0000		lories)	7,711.8	
			-b0.0006	Correction	41.4	
.60	26.280	-a0.0020		Heat developed by com-		
.00	20.200	-0.0020	-b0.0023	bustion of sample (calories)		
2.01	26.439	-a0.0025	10,0000	- 1		
.02	26,463	-a0.0026	-b0.0026			
.02	20.403	0.0020	-b0.0026			
.03	26.466	-a0.0026	10,0000			
			-b0.0026			
			- 0.0066 alge	ebraic sum.		
.04	t 26.463					
.05	26.460					
.06	26.458	0.0006	mata of change	in final nariad		
.07	26.455 $26.454$	- 0.0020	rate of change	e in final period.		
.09	26.450					
Calories.						
	Wire burned=11. 2 mg. =19.0 Titer (1 c. c.=5 cal.), 2.5 c. c. =12.5					
	Sulphur (0. 01 gm.=13 cal.), 0. 76 gm. = 9. 9					
	Room temperature=24° C.					

If A equals the rate of change during the preliminary period and B equals the rate of change during the final period, then A-B equals the change in rate during the combustion period.

If T equals the initial temperature of the combustion period and t the final temperature of the combustion period, then T-t equals the apparent change in temperature during the combustion period.

Then  $\frac{A-B}{T-t}$  = the change in rate per degree of temperature change during the combustion period.

Let the temperature readings during the combustion period be represented by  $t_1$ ,  $t_2$ ,  $t_3$ , etc., or in general by  $t_n$ , then the computed rate per minute of temperature change at each reading is found by the following formula:

$$A - (t_n - T) \frac{A - B}{T - t}$$

a Computed rate per minute of temperature change at each reading.

b Temperature correction for heat loss during each interval.

The temperature correction for heat loss during each interval is found by multiplying the mean of the computed rate per minute of temperature change for any two readings by the interval in minutes. The algebraic sum of these temperature corrections for heat loss equals the total correction for heat loss; this in the example given is -0.0066° C. This quantity is added to the observed temperature change (corrected for errors in the thermometer), and this sum multiplied by the weight of the water plus the water equivalent of the apparatus gives the total heat developed. Further corrections must be made for heat due to the formation of aqueous nitric acid and sulphuric acid and to the combustion of the iron wire. The correction for iron wire is 1.7 calories per milligram. The correction for sulphur burned to sulphuric acid is 13 calories per centigram. The correction for nitrogen to aqueous nitric acid is made by titrating the bomb liquor with standard ammonia solution (0.00574 gram NH, per c. c.). This solution is equivalent to 5 calories per cubic centimeter.

After the combustion of the coal in the calorimeter, the bomb is washed out thoroughly. The washings are titrated with standard ammonia solution (0.00574 gram per c. c.), methyl orange being used as an indicator. The acidity is due to the formation of nitric acid from the nitrogen of the coal and the nitrogen of the air in the bomb and to the sulphuric acid formed from the combustion of the sulphur in the coal. The sulphur can be easily determined by precipitation as barium sulphate. It is convenient to make the ammonia solution of such strength that 1 cubic centimeter is equivalent to 0.00473 gram of nitrogen, for this weight of nitrogen burned to  $N_2O_5$  plus water generates 5 calories of heat. The figures are derived as follows:

The calorific value of nitrogen burning to  $N_2O_5 + water$  is 1,058 calories per gram.

1,058 calories: 5 calories=1 gram: 0.00473 gram.

Therefore 0.00473 gram nitrogen generates 5 calories of heat when burned to aqueous HNO<sub>3</sub>.

The ammonia solution is made up according to the equation:

 $\mathrm{HNO_3} + \mathrm{NH_3} = \mathrm{NH_4NO_3}.$ Since N=14 and NH<sub>3</sub>=17,

14:17=0.00473 gram: 0.00574 gram.

Therefore 0.00574 gram NH<sub>3</sub> is equivalent to the nitrogen which when burned to aqueous HNO<sub>3</sub> generates 5 calories of heat. The standard solution contains 5.74 grams of NH<sub>3</sub> per liter. The solution, when used to titrate the bomb liquor after the combustion of a coal

sample, must satisfy not only the nitric acid formed but also any sulphuric acid resulting from the combustion of the sulphur in the coal.

The strength of the ammonia solution in terms of sulphur in the form of sulphuric acid is determined by the following equation:

 $2NH_3 + H_2SO_4 = (NH_4)_2SO_4$ . Since  $2NH_3 = 34$  and S = 32,

34:32=0.00574 gram NH<sub>3</sub>:0.0054 gram S.

The heat of combustion of sulphur to aqueous H<sub>2</sub>SO<sub>4</sub> is 4,450 calories per gram of sulphur. In the ordinary combustion of coal under a boiler the sulphur burns to sulphur dioxide (SO<sub>2</sub>), the heat of formation of which is 2,250 calories per gram of sulphur. The difference between these two calorific values (4,450 calories minus 2,250 calories) is 2,200 calories per gram of sulphur. The calorific value of a coal is determined to indicate the heat generated by that coal when burned under a boiler, and therefore it is necessary to make a correction in the calorimeter determinations, the difference in the calorific values due to the sulphur compounds formed, of 2,200 calories per gram of sulphur. One cubic centimeter of the ammonia solution is equivalent to 0.0054 gram of sulphur; 0.0054 times 2,200 equals 11.9 calories, the heat correction to be made if all the acidity of the liquor from the bomb represented H<sub>2</sub>SO<sub>4</sub>.

Hence the ammonia solution containing 0.00574 gram NH<sub>3</sub> per cubic centimeter is equivalent to 5 calories for nitrogen converted to aqueous nitric acid or to 11.9 calories for sulphur converted to aqueous H<sub>2</sub>SO<sub>4</sub>. A further correction, therefore, must be applied for the sulphur that is determined separately. This correction is a function of the difference between the value of the ammonia solution in terms of sulphur (11.9 calories), and its value in terms of nitrogen (5 calories) or 6.9 calories. The difference, 6.9, divided by 0.0054, the value of 1 cubic centimeter of ammonia solution in grams of sulphur, equals 12.76 calories per gram of sulphur, or 13 calories for each per cent of sulphur.

Thus the correction for total acidity equals the number of cubic centimeters of NH<sub>3</sub> solution multiplied by 5 (the factor for nitric acid) plus the percentage of sulphur multiplied by 13.

#### STANDARDIZATION OF THE CALORIMETER.

The first factor to be considered in calorimetric work is the correct determination of the water-equivalent value of the apparatus. This may be determined by a number of methods, as follows:

1. By adding the products of the weight of the different parts of the apparatus times their specific heat. 2. By generating heat within the bomb by passing a measured electric current through a known resistance.

3. By adding definite weights of water at different temperatures to the system and noting the corresponding temperature changes.

4. By varying the quantity of water surrounding the bomb and keeping the heat generated within the bomb constant.

5. By the combustion of a substance of known calorific value.

The bombs used in the Pittsburgh laboratory of the Bureau of Mines are standardized by the first and fifth methods.

#### STANDARDIZATION BY METHOD OF SPECIFIC HEATS.

Bomb No. 411 was standardized by the first method. The water equivalent value, 516, was derived in the manner shown below:

#### Standardization of calorimeter by method of specific heats.

	Weight Specific Water (grams), heat, equivalent.
Steel	
Brass	$732.9 \times a 0.093 = 68.16$
Lead, mercury, platinum	$81.6 \times a0.0324 = 2.64$
Enamel	$20.0 \times b0.2045 = 4.09$
Glass	$11.5 \times c 0.1988 = 2.29$
Oxygen	$14.0 \times a 0.2175 = 3.05$
Water	$3.0 \times 1 = 3.00$

The standardization of a Mahler bomb calorimeter by the above method is rather unsatisfactory, because of the difficulty in accurately weighing all the parts. In fact, it is possible only to estimate the weights of such parts as the enamel. The immersion of the parts is another factor of considerable importance. Certain parts of the bucket, stirrer, and bomb are not completely immersed.

The water equivalent value obtained by this method was used to check the value obtained by the fifth method, the combustion of a substance of known calorific value.

#### STANDARDIZATION BY COMBUSTION OF MATERIAL OF KNOWN CALORIFIC VALUE.

The writer regards the determination of the water equivalent value of the calorimeter by the combustion of definite weights of substances of known calorific value as the most satisfactory method of standardization.

The following substances were used: Naphthalene, calorific value 9,660; benzoic acid, calorific value 6,322; and cane sugar, calorific value 3,959.

516.15

The average of 15 determinations with naphthalene, benzoic acid, and sugar gave 500 as the water equivalent of the calorimeter; 2,500 grams of water were added to the calorimeter so that the total water and water equivalent value of the apparatus was equivalent to 3,000 grams of water.

The average of four determinations on sucrose (supplied by the Bureau of Standards) having a calorific value of 3,957.6 calories per

gram was, with this calorimeter, 3,955 calories per gram.

The average of nineteen determinations on benzoic acid (Kahlbaum's) was 6,336 calories per gram.

The calorific value of a number of substances is given in the following table:

# Calorific value of various substances.

Substance.	(calories per g	
Benzoic acid		•
Do		Atwater and Snell.
Do		Stohman.
Do		Berthelot.
Do	,	Fischer and Wrede.
Do		Roth.
Do		(Recommended by Bureau of Standards.)
Camphor	,	Atwater and Snell.
Do		Stohman.
Do		Berthelot.
Cane sugar	3, 959	Sherman and Snell.
Do	3, 959	Stohman.
Do	3,962	Berthelot.
Do	-	Tower.
Do	3,957	Fischer and Wrede.
Do	3, 952	Roth.
Do	3, 958	(Recommended by Bureau of Standards.)
Hippuric acid	5,664	Atwater and Snell.
Do		Stohman.
Do	5, 659	Berthelot.
Naphthalene	9,692	Berthelot.
Do	,	Stohman.
Do	9,660	Atwater and Snell.
Do	9,640	Roth.

The values used by Atwater and Snell are averages of the Stohman and the Berthelot values.

## IGNITING THE FUEL WITHIN THE BOMB.

The sample is ignited by an electrically heated iron-wire fuse mounted between two platinum terminals. The accompanying diagram (fig. 2) shows the electrical connections when the current is derived from a 220-volt direct-current circuit. The iron-wire fuse is in series with a lamp bank of sixteen 16-candlepower incandescent

lamps. A second resistance of about 14 ohms is shunted across the heating coil. The purpose of the shunt is to reduce the voltage across the terminals of the heating coil after the coil is fused, and, consequently, to reduce the leakage of current between the terminals, which are partly immersed in the water surrounding the bomb. Observations made immediately after the fusing of the coil show that the electromotive force of the current at the terminals is 75 volts and the strength of the current is 0.0052 amperes. The insulation resistance is, therefore, 14,400 ohms.

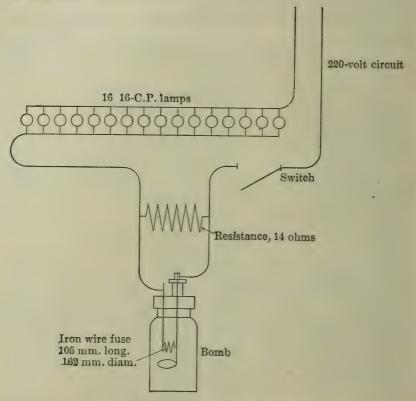


FIGURE 1. Electrical connections for fuse in calorimeter.

The water used in the calorimeter is changed twice each day, and not more than 10 determinations are made with the same water. In heating the iron wire-fuse the circuit is never closed for as long a time interval as one second; consequently, the heat imparted to the system by the passage of the current through the water is so small as to be negligible. If E equals the electromotive force, I the strength of the current, and t the time in seconds, then the heat generated by an electric current is equal to  $0.239 \times 15 \times 1000$  EIt. Substitution of the above readings gives  $0.239 \times 75 \times 0.0052 = 0.09$  calories per second—the quan-

tity of heat generated per second by the electric current that passes through the bomb and water after the wire fuse is burned.

It is difficult to calculate the heat generated by the current in passing over the iron-wire fuse before the latter burns, because the resistance of the iron differs at different temperatures. However, the heat from this source is practically a constant for each determination.

The following table shows the quantity of energy dissipated by the circuit through the wire fuse as the number of lamps in the circuit is increased:

Heat dissipated by wire fuse of calorimeter.

Number of lamps in circuit.	C	urrent passed		Heat dissipated.
0	Volts. 1.00 1.03 1.13 1.26 1.67 1.99 2.77 3.86, 12.50	Amperes41 .63 .85 1.06 1.27 1.46 1.86 1.88	Watts41 .65 .96 1.34 2.12 2.91 4.59 7.18 23.54	Calories per second. . 10 . 15 . 23 . 51 . 69 1. 10 1. 72 5. 63

a Fuse wire burned.

The following shows the time required for the burning of the wire fuse when the number of lamps in the circuit is varied:

Time required for burning wire fuse of calorimeter.

Number of lamps in circuit.	Time required (seconds).
10 (wire does not burn).	
11	7.8
12	1.4
13	1.2
14	1.0
15	8
16	less than .5

#### CALCULATION OF RESULTS.

For convenience in comparing the analyses, the results have been figured to different bases of comparison and are given for "coal as received," "moisture free" or "dry coal," and "coal, moisture and ash free." No claim is made that any of these results actually represent the so-called "pure coal" or "true coal substance."

"Pure coal" is a much-mooted question. It is difficult, if not impossible, to determine just how much of the ash and sulphur are in chemical combination with organic matter and form part of the "pure coal substance." Coal analyses reduced to the "moisture and ash free" basis are convenient for comparison and undoubtedly represent a close approximation to the "pure coal substance."

The calculations to the different bases of comparison are made according to the following formulas:

Calculation from "air dried" to "as received" condition. "As received" condition. "Air dried" condition. Moisture at 105° C.  $\times \frac{100-\text{air dry loss}}{100} + \text{air dry loss} = \text{moisture}$ .  $\times \frac{100 - \text{air dry loss}}{100}$ =volatile matter. Volatile matter 100  $\times \frac{100 - \text{air dry loss}}{100}$ Fixed carbon =fixed carbon.  $\times \frac{100 - \text{air dry loss}}{100}$ =ash. Ash  $\times \frac{100 - \text{air dry loss}}{100}$ =sulphur · Sulphur  $\times \frac{100 - \text{air dry loss}}{100} + \frac{\text{air dry loss}}{9}$ =hydrogen. Hydrogen  $\times \frac{100 - \text{air dry loss}}{100}$ Carbon =carbon.  $\times \frac{100 - \text{air dry loss}}{100}$ Nitrogen =nitrogen.  $\times \frac{100 - \text{air dry loss}}{100} + \frac{8(\text{air dry loss})}{9}$ Oxygen =oxygen.  $\times \frac{100 - \text{air dry loss}}{100}$ Calorific value =calorific value. Calories×1.8=B, t, u.

Du Long's formula for calculating the heat value from the ultimate analysis is as follows:

Weight carbon $\times 8,080+$  (weight hydrogen $-\frac{\text{weight oxygen}}{8}$ ) $\times 34,460+$  weight sulphur  $\times 2,250=$  calories per gram.

Calculation from "air dried" to "moisture free" condition. "Air dried" condition. "Moisture free" condition. 100  $\times_{\overline{100-\mathrm{moisture}}}$ =volatile matter Volatile matter  $\times_{\overline{100-\text{moisture}}}$ =fixed carbon Fixed carbon 100 Ash  $\times_{\overline{100-\text{moisture}}} = \text{ash}$  $\times \frac{100 - \text{moisture}}{100 - \text{moisture}} = \text{sulphur}$ Sulphur Hydrogen $\left(-\frac{1}{9}\text{moisture}\right) \times \frac{100}{100 - \text{moisture}} = \text{hydrogen}$ 100 Carbon  $\times_{\overline{100-\text{moisture}}}$ =carbon  $\times \frac{100 - \text{moisture}}{100 - \text{moisture}} = \text{nitrogen}$ Nitrogen  $\times \frac{100 - \text{moisture}}{100 - \text{moisture}} = \text{oxygen}$ Oxygen( $-\frac{8}{9}$  moisture) 100  $\times_{\overline{100-\mathrm{moisture}}}$ =calorific value Calorific value

The analyses are calculated to the "moisture and ash free" basis by taking 100 - (moisture + ash) as a divisor and proceeding otherwise exactly as in the calculation to the "dry coal" basis.

# EXPLANATION AND INTERPRETATION OF ANALYSES.

By A. C. FIELDNER.

The analyses given in the following table are arranged in the manner thought to be the most convenient for ready reference. The coal-producing States, the counties, and the places at or near which the samples were collected are printed in alphabetical order. Thus the first sample in the table is under Alabama, Bibb County, and the location is given as "Belle Ellen, Youngblood bed," showing that the coal came from a mine working in the Youngblood bed, at or near Belle Ellen, Bibb County, Alabama. The descriptions of the situation of the points at which samples were taken in mines are believed to need little explanation. The term "cut" or "length of cut" refers to the thickness of the coal sampled, not the thickness of the bed. The term "waste sample" signifies that the sample represented coal not included in commercial shipments at the time of sampling.

The third column in the table shows the kind of sample, whether mine or car. The term "mine sample" refers to the small samples collected from the bed by representatives of the United States Geological Survey; the term "car sample" refers solely to the samples collected from cars of coal shipped to St. Louis by inspectors of the first testing plant for tests in a large way.

fuel-testing plant for tests in a large way.

The numerals in the fourth column of the table, headed "condition," refer to the ways of reporting each analysis: 1 signifies that the sample is figured on coal "as received," and shows the analysis corrected for the entire amount of moisture found in the sample; 2 refers to analysis on the "moisture-free" basis; 3 refers to the analysis on a "moisture and ash free" basis; 4 refers to the analysis calculated to a "moisture, ash, and sulphur free" basis.

## PROXIMATE ANALYSIS.

In a proximate analysis the chemist determines important or technically known parts of a material, as moisture or ash. The term proximate does not signify that such an analysis is only approximately correct. With sufficient care the determinations of a proximate analysis may be closely duplicated provided the determinations are always made under exactly similar conditions.

#### MOISTURE.

The water in coal is usually classed under two heads: (a) Loosely retained or mechanically held moisture, such as is present in coal

that has been rained on; (b) moisture retained by coal that has reached an air-dry condition. The main reason for air drying coal in the laboratory is to bring the coal into a condition that permits the making of the analysis with greatest convenience and accuracy. The extent to which coal dries varies with the temperature of the air, the humidity, and the fineness to which the coal is crushed.

A sample of coal that is air dried at ordinary temperatures until it does not lose weight retains moisture that is given off when the temperature rises. The proportion of this more tenaciously retained moisture is determined by heating the finely powdered air-dried sample in air at a temperature slightly above the boiling point of water. It is considered that one hour's heating at 105° C. (221° F.) expels all the free or loosely held water in coal. In the table the percentage of moisture given in the analysis for the "as received" condition represents all the moisture removed from the sample.

## VOLATILE MATTER AND FIXED CARBON.

In the proximate analysis of coal, volatile matter and fixed carbon are determined by heating a finely powdered sample of the coal in a crucible, under prescribed conditions, for exactly 7 minutes. The volatile matter comprises combustible gases, some inert gas, and the water formed by the decomposition of the coal, but does not include the water removed from the coal by drying at a temperature of 105° C. The weight of the coke left in the crucible, less the weight of the ash, is reported as "fixed carbon." The weight of the fixed carbon does not represent all the carbon in the sample of the coal, as a considerable quantity of carbon combined with hydrogen is driven out in the volatile matter; furthermore, the fixed carbon is not pure carbon, but contains hydrogen, sulphur, oxygen, and nitrogen. It should be clearly understood that the term "volatile matter" or "volatile combustible matter" does not signify a definite compound that was in the coal before it was heated. Different degrees or rates of heating will give more or less volatile matter.

#### DIFFERENCES IN VOLATILE-MATTER DETERMINATIONS.

Volatile matter determinations made in different laboratories may not agree closely, even though each laboratory conforms to the method recommended by the American Chemical Society. This method prescribes the size of the flame, but does not consider the variations in flame temperature resulting from differences in the composition of the gas used and in the pressure at which it is supplied to the burner. Hence the volatile matter, and consequently the fixed carbon, determinations published in this bulletin are not didirectly comparable throughout, because the work was done in three

different laboratories, under four different sets of conditions. In making comparisons, the determinations should be considered in four groups, as follows:

Group 1, laboratory Nos. 1 to 5146, inclusive. These determinations were made in the St. Louis laboratory, where gasoline gas was used for fuel.

Group 2, laboratory Nos. 5147 to 7100, inclusive. These determinations were made while the laboratory was in the Carnegie Technical Schools, Pittsburgh, Pa., where natural gas was used as fuel. There is no record of the pressure at which the natural gas was supplied to the burners, but this pressure was probably about 10 inches of water.

Group 3, laboratory Nos. 7101 to 9120, inclusive. These determinations were made after the removal of the laboratory to its present site, Fortieth and Butler Streets, Pittsburgh, Pa., where natural gas has been used for fuel. During the period of the determinations in this group, the low pressure of the gas at the burners gave much trouble. The pressure fluctuated between 1½ and 5 inches of water, apparently varying with the demands of certain industrial establishments that were taking gas from the same main.

Group 4, laboratory Nos. 9121 and over, were analyzed under the same conditions as group 3, except that the pressure of the gas at the burners was kept at 10 to 14 inches of water. With the use of the Tyrell burner and a polished platinum crucible a temperature of about 880° C. was maintained in the interior of the coke, at a point about 2 millimeters from the bottom of the crucible.

Comparisons of analyses of samples of coal from the same mine show that the volatile matter and the fixed carbon determinations of group 1 and group 4 agree fairly closely; the variations are both plus and minus and as a rule within 1 per cent. The determinations of group 3, however, are distinctly lower in volatile matter and higher in fixed carbon than are those of group 1 and of group 4. The differences are about 3 per cent for low-volatile semibituminous coals and anthracite, and decrease gradually, as the volatile matter in the coal increases, to about 1 per cent for bituminous coals. The volatile matter determinations made while the laboratory was in the Carnegie Technical Schools (group 2) fall about midway between the determinations at the St. Louis laboratory (group 1) and those made with natural gas under low pressure (group 3).

The volatile matter of some lignite and subbituminous coal samples, designated in the table of analysis by an asterisk (\*), was determined by the modified official method. These samples were given a preliminary heating of 4 minutes over a small flame, and a final heating of 7 minutes over a flame 20 centimeters high.

#### ASH.

Ash represents the mineral impurities left after burning coal. The weight of ash, however, is usually slightly less than the original weight of the mineral matter in the coal. The sources of ash are:

(1) Mineral matter intimately mixed with the coal substance; and
(2) layers of shale or "slate," pyrites nodules, etc., in the coal bed.

The percentage of ash from the first source is fairly uniform in different parts of the same bed. The percentage of ash from the second source varies considerably, dependent on the number and thickness of the partings and the care with which these are separated from the coal in mining. Coal ash is composed largely of silica, alumina, iron, and lime. The silica and alumina are derived chiefly from sand, clay, and shale in the coal bed; the iron oxide from iron pyrites; and the lime from carbonate and sulphate of lime. An ash with a high percentage of iron and lime is easily fusible and is likely to clinker badly in a furnace.

### ULTIMATE ANALYSIS.

In an ultimate analysis of coal the chemist determines the proportions of carbon, hydrogen, oxygen, nitrogen, sulphur, and ash in the sample. These determinations, with the exception of the oxygen, may be made with a fair degree of accuracy.

## CARBON AND HYDROGEN.

Carbon and hydrogen are the most important constituents of the more combustible matter and the chief heat-producing elements in coal. The proportion of hydrogen in most coals is less than 6 per cent, being least in anthracite.

### OXYGEN.

The proportion of oxygen is found by subtracting the sum of the carbon, hydrogen, nitrogen, sulphur, and ash from 100; hence the value found is affected by all errors made in the other determinations. All the oxygen in the coal is considered as being combined with the hydrogen in the ratio (1:8) to form water. Hence the hydrogen thus combined and not available for producing heat is equal to one-eighth of the oxygen; the balance of the hydrogen is considered as combined with the carbon and contributing to the heating value of the coal.

## NITROGEN.

The proportion of nitrogen in coal usually averages from 1 per cent to 2 per cent. It is of interest mainly to the gas and coke manufacturer, who recovers part of the nitrogen as ammonia.

#### SULPHUR.

Sulphur, although classed as an impurity in coal, has a heating value when in the form of iron pyrites, of almost one-half that of the coal it replaces. For certain purposes, such as the manufacture of coke and illuminating gas, coals containing much sulphur are undesirable. Sulphur is commonly present as iron pyrites either in large lumps and bands or fine disseminated particles. It may also be present in combination with lime and magnesia as sulphates, or in combination with the coal substance as organic sulphur.

## CALORIFIC POWER OR HEATING VALUE.

The calorific power or heating value of a fuel is the total amount of heat developed by the complete combustion of a unit weight of fuel. In the metric system of measurements the heat unit is the calorie. The calorie is the quantity of heat required to raise the temperature of 1 gram of water 1° C., the water being at the temperature at which its density is greatest. In the English system the heat unit is the British thermal unit. The British thermal unit is the quantity of heat required to raise the temperature of 1 pound of water 1° F., the water being at the temperature of maximum density, 39.1° F. Since 1 pound of a fuel will heat 1 pound of water to just the same degree that 1 gram of fuel will heat 1 gram of water, the relation between British thermal units and calories, if the weight of water and the weight of fuel are expressed in the same units, becomes that of the thermometric scales; and as a centigrade degree is nine-fifths of a Fahrenheit degree, heat values expressed as calories may be converted into British thermal units by multiplying by nine-fifths, or 1.8.

The most accurate method of determining the total heating value of coal is by burning a stated weight of it in a bomb calorimeter, as described on pages 17 and 18 of this report, and measuring the rise of temperature in a known quantity of water surrounding the bomb.

In general the heating value or calorific power of a coal is an index of its commercial value. The calorific power determined with a bomb calorimeter can not be obtained from the same coal burned in a boiler furnace, because heat is absorbed in evaporating the water in the coal and in heating to the temperature of the flue gas the products of combustion and the air supplied for combustion. These losses vary with the character of the coal and the way in which it is burned. The net heating value that remains after the subtraction of these unavoidable losses is called the "available calorific value," or the "low heating value."

## SIGNIFICANCE OF THE RESULTS OF AN ANALYSIS.

The air-drying loss of a mine sample indicates to some degree the loss in weight after mining from the evaporation of loosely retained

moisture. The analysis of the coal "as received" shows the actual composition of the coal in the mine. After the coal has left the mine its moisture content lies between the limits of coal "as received," and coal "air dried." The analysis on a "moisture free" basis, represents the composition of the coal after drying at 105° C. (221° F.). The analysis stated on a "moisture and ash free" basis represents approximately the heating value and composition of the dry organic matter. This relation seems to be fairly constant for the same coal bed in certain districts, especially in the Appalachian region. Comparison of numerous analyses shows that the "moisture and ash free" calorific values of different samples from the same mine and bed usually agree closely, provided the proportion and the character of the ash and the sulphur do not vary greatly.

# COMMERCIAL VALUATION OF COALS.

For the commercial valuation of coals a proximate analysis and a calorific value determination are usually sufficient. Moisture and ash are of importance; they not only displace their own weights of combustible matter, but the evaporation of the moisture wastes heat. A high percentage of ash increases the cost of handling coal in a power plant and decreases the efficiency of the furnace. The ratio of the volatile matter to the fixed carbon indicates in a way the type of furnace best adapted for burning a coal with maximum efficiency. The smokeless combustion of coal containing a low percentage of volatile matter is not difficult in furnaces of ordinary types, but to burn a high volatile coal without smoke requires a suitably designed furnace. A high percentage of sulphur is undesirable in coal used for the manufacture of coke and gas. For ordinary steaming purposes sulphur is not a serious drawback unless associated with elements, such as iron or lime, that promote clinkering.

## TABULATED ANALYSES.

On the following pages are given the analyses of the samples of coal collected by the United States Geological Survey during the period covered by this report. The detailed descriptions of the samples, the geologic relations of the coal beds from which they were taken, and notes on mining conditions, preparation, and marketing of the coal are given in Part II, pages 323–1158.

Table of chemical analyses.

	ŭ	Sample.a			Proximate.	mate.			D	Ultimate.				Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.*	Klnd.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	II y- dro- gen.	Car- bon.	Nitro-gen.	Oxy-gen.	dry- ing loss.	Calo-	British thermal units.	Bul- letin No. b	Page of this buille-tim.c
АГАВАМА. вівв сопиту.							Citizen data access										
Belle Ellen, Belle Ellen No. 2 mine, sec. 15, T. 22 S., R. 5 W., Coke (or Youngblood) bet (2,000 feet west of opening, north heading 8, 22-foot	9254	<b>a</b>	-0300	3.12	31.41 32.43 34.48	59. 70 61. 62 65. 52	5.77	1.24					2.1	7, 795 8, 046 8, 556	14,031 14,483 15,401	431	331
Same (2.000 feet west of opening, room 33, south heading 9, 55-inch cut).	9255	=	-010	3.16	32.06	59.56	6.23	1.20	5.33	78.28	11.37	4.04	2.0	8,112	14,141	431	331
3 miles north of; Cane Creek No. 2 mine, Young- blood bed (room 26 off heading 6, 900 feet	303 \$	<	2-03	3.67	33.55	59.64 61.91	3.14	1.22			Z0.I	0.70	2.6	8, 302 8, 302	14,396	332	332
northeast of slope, 34-inch cut). Same (room 19, entry 9, 1,500 feet northeast of slope, 35-inch cut).	3035	4	00 ← 03	3.60	36.00 34.08 35.35	64.00 62.86 62.70	2.46	 					c;	8, 583	15, 449	# 25 <b>2</b>	332
Same (run of mine)	3103	C	m → 01	6.43	36.28 30.55 52.55	55.52	12.92	1.08	6.23	69.07	1.18	10.52	5.5	6,886	12, 395	33.2	
Blocton, 14 miles east of, Blocton No. 7 mine, Thomp-son bed (cross entry 6 off east heading 14.	7394	٧	ಣ್ಣಣ	3.21	32.05	25.23	3.95	4.3.3.	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	85.64 80.50	1.26	25.96 25.25 25.25	Ci Ci	8,538	15,378	9	258
614-inch bed, 574-inch cut). Same (east entry 2, room 9 off left crosshead-ing, 601-inch cut).	7395	V	n → 01	3.47	#35.83 25.05	59.58	4.89	59.55	5.58	83.92	1.29	8.56	Ci	7,7,8 27,7,8 3,935 3,935 3,935	15, 106 13, 788 14, 283	9	. 25
Garnsey, sec. 7, T. 22. S., R. 4 W., No. 1 mine, Thompson bed (east cross entry 8, 2,700 feet south of slope, 4-foot cut).	3018	4	ა⊶ი1 co	3.03	30.94 31.91 35.87	55.31 57.04 64.13	10.72	24.55.					1.6	8,395	13,634	332	## T

a The kind of sample is denoted by letter, as follows: A—mine sample collected by an inspector of the technologic branch of the Survey; B—mine sample collected by a geologic fact of the fact at the fuel-estimp plant. The form of analysis is denoted by number, as follows: 1—sample as received; 2—dried at temperature of 165 °C; 3—moisture and a ministure, as he will not fine the form of analysis is denoted by number, as follows: 1—sample as received; 2—dried at temperature of 165 °C; 3—moisture and a ministure, and a sulping free.

b Figures in roman type denote references to building of the United States Geological Survey, those in heavy type to building of the Bureau of Mines, and those in italies to professional papers of the United States Geological Survey.

Figures in outside right-hand column refer to page of this buildin where may be found the description of the bed from which the sample was taken.

\* The volatile must be read to be a supplex where the proceeded by an asterisk (\*) was determined by the modified official method (see p. 29).

Table of chemical analyses—Continued.

nce.	Page of this bulletin.		333		333	333	333	334	334	334	334	334	334
Reference.	Bul- letin No.		332	332	431	431	431		431	431	:	:	
Calorific value.	British thermal units.			12,461	15,028 13,041 13,507	12, 443 12, 443 12, 901	15,001	12, 780 13, 430	15, 251 11, 477 12, 290	15, 145 13, 387 14, 040	15, 169		
Calorifi	Calo- ries.			6,923	7,245	8,360 6,913 7,167	8, 334 6, 487 6, 733	7,461	8, 473 6, 376 6, 828	8,414 7,437 7,800	8, 427		
	Air- dry- ing loss.		1.9	1.2	2.2	2.2	2.5	3.9	5.5	3.5	2.3	2.1	2.7
	Oxy-			9.41	.80.7. 8.80.88 8.80.88	9.34	7.45	9.79	6.55 11.76 6.30	11.16	7.96		
	Nitro-gen.			1.14	1113	1113	1.34	1.23	1.10	1.18	1.34		
Ultimate.	Car-			69.99	84. 41 72. 72 75. 32	70.56	85.08	71.61	85.46 63.37 67.86	74.85	84.81		
	Hy- dro- gen.			4.55	2.13	4.87	5.40	5.26	6.44 8.84	5.03	5.11		
	Sul-		0.53	55.5	656	5.25	55.	47.	1.28	388	x x x x	852	1.00
	Ash.		12.16 12.57	14.36	9.89	13.51	19.03 19.75	11.37	17. 60 18. 85	7.09	7.39	9.20	9.93 10.36
mate.	Fixed car-		54, 16	53.46 54.03	64. 48 54. 97 56. 95	53.69 55.66	64. 73 49. 94 51. 83	52. 40 55. 05	62.52 46.93 50.25	61.92 55.07 57.75	55.39 56.03 58.03	63.33 55.08 57.01	63.02 53.34 55.64
Proximate.	Vola- tile mat- ter.		30.43	25.97 29.46 20.28	32.52	30.25	25.27 27.38 28.42	33.00	30.37.48 30.85 30.90	33.19 34.81	37. 61 32. 49 33. 85	32.92 33.46 46.67	36.98 32.58 34.00
	Mois- ture.		3, 25	2.72	3.46	3.55	3,65	4.83	6.62	4.65	4.03	3.40	4.15
	Con- di- tion.		-0	∞—c	30-01	20-0	m → C1 c	2 H C1	e = e1	∞ –i ⊘i	m → M1	m=0	es ⊶ es es
Sample.	Kind.		₹	Ö	щ	B	М	В	М	В	∢	4	∢
02	Lab- ora- tory No.		3019	3255	9249	9250	9251	9996	9252	9253	10461	10460	10465
	Locality, bed, etc.	ALABAMA—Continued. BIBB COUNTY—continued.	Garnsey, No. 1 mine—Continued. Same (room 2, west entry 7, 2,500 feet south- west of slope, 42-foot cut).	Same (run of mine)	Same (east heading 9, 663-inch bed, 22-inch cut).	Same (east heading 9,66½-inch bed, 32½-inch cut).	Same (entrance to west heading 8, 73-inch bed, 634-inch cut).	Marvel, near, Daley mine, in sec. 6, T. 22 S., R. 4 W., Coke (Youngblood) bed, 100 feet north of	Marvel, Marvel mine (slope 1, first right heading, 200 feet south of mine mouth, 3-loot cut	Same (slope 2, Clark bed, left heading 1, 37-inch cut).	Same (slope 2, Gholson lower bed, room 18, left heading 1, 53-inch cut).	Same (Gholson lower bed, face right heading 2, slope 2, 43½-inch cut).	Same (slope 2, room 1, left heading 2, 474-inch cut).

			STIA	ALJI	CAEG.	Or '	COAL	11V	11	IE UN	ILED	SIE	LLES	•		99
334	333	335	335		335	335	336	336		336	337	337	338	338	338	338
	:			:	431	431	332	332	332		260	260	285	285	285	285
13, 291	15, 233			13, 498	13,228	14,930	14,931	14,693	15,575	15,205 12,744 13,190						13, 459 13, 858 15, 565
7,384	8, 463				8, 460 7,530 7,775	ت ا ت ا ت	8, 295			8,447 7,328 471				0 0 0 0 0 0 0 0 0		7,477 7,699 8,647
4.	2.8	1.4	1.2	1.8	1.4	1.2	3.6	1.9	4.4	2.0	1.8	2.2	1.0	1.3	6	1.6
6.42	7.08			9.69	7.57 10.71 8.18	8.72			9.97					0 0 0	* * * *	8 8 8 8 8 8 8 8 9 8 8 8
1.30					1:124				1.27							
74.20	85.04				84.35 76.23				66. 58							
5,14					5. 32				4. 70	5.21			0 0 0			
88	1.03	146	45tr	1.04	81.1.	48.9	88.	855	1.40	26884	94	355	4.4.92	868		4.2.2.2. 8.0.0% 9.0.0%
9.33	7.06	10.43	6.30	8.02		5.45	41.4		16.08	13.05	10. 18 10. 48	19.80	15.64	2.77	11.36	10.65 10.97
					62. 14 55. 8 57. 7					68. 02 55. 89 57. 83 66. 86						55.59 55.89 55.89 55.89 55.89
					37.86 35.0 36.0					31. 98 27. 69 28. 66 33. 14						3.00 3.00 3.4.19
3.77	4.56	2.80	2.88	3.34	3.1	2.64	4.72	2.93	5.59	3.37	2.88	2.91	1.76	2.86	1.83	888
-00	m=01	2-2	200	50 m cs	es → es e	o 01 0	o 01	100 H 03	es → es	100 H 0100	-010	2-01	200	∞ <del></del> 03	n → 010	2400
4	V	4	٧	٧	=	2	V	4	0	n	n	a	m	a	a	m
10484	10462	10463	10464	10485	9243	9244	4090	4091	4252	2191	1145	1149	1931	1920	1917	1918
Same (composite of Nos. 10460, 10461, and 10465).	Same (Clark upper bed, face of left heading 2, off slope 1, 403-inch cut).	Same (Clark upper bed, left slope 3, off main slope, 45½-inch cut).	Same (Clark upper bed, face of slope, alr course, 474-inch cut).	Same (composite of Nos. 10462-10464)	Piper, Piper No. 1 mine, Thompson (or Underwood) bed (3,500 feet from opening, east heading 15,	Same (3,500 feet from opening, west heading 15, 56-inch cut).	BLOUNT COUNTY. Lehigh, No. 2 mine, Black Creek bed (left cross entry 9, 2,000 feet south of oneulng, 233-inch cut).	Same (right entry 10, 2,100 feet south of opening, 28-inch cut).	Same (run of mino)	Swansea, Fairchild mine, sec. 5, T. 14 S., R. 1 E., Swansea, bed, 450 feet south of drift mouth, 57-inch cut.	Adger, Blue Creek No. 3 mine Blue Creek bed (about 2,000 feet southeast of mouth, 84-	Same, room 7, off third right heading (843-inch cut).	Cardiff, 1 mlie west of; sec. 16, T. 16 S., R. 4 W., No. 16 mine, Niokel Plate bed (lower 15-inch bench).	Same (upper 173-inch bench)	Same (Pratt bed, mouth of entry 4, on face of heading 3, 39-inch cut).	Same (right heading 5, off entry 3, 40-inch cut).

Table of chemical analyses—Continued.

	ž	Sample.			Proximate.	mate.			n	Ultimate.			1	alorific	Calorific value.	Referense.	enee.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Volatile mat- ter.	Fixed carboon.	Ash.	Sul- phur.	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-	Air-dry-ing loss.	Calo-	British thermal units.	Bul- letin No.	Page of this bulle- tin.
ALABAMA—Continued.																	
JEFFERSON COUNTY—continued.											_						
Clift, sec. 22, T. 16 S., R. 3 W., Clift mine (Pratt bed, main entry, at No. 3 cut, 800 feet from	1754	m	-07	2.66	29.93	59.04	8.37	1.71					1.6			28.5	339
mouth, 354-inch cut). Dolomite, No. 2 mine, Pratt bed (77-inch cut).	3579	М	20-03	3.16	25.54 26.23 26.23	67.75 69.96	3.69	3.88	5.05	82.28	1.36	7.06	2.0	8,120	14,616 15,093	285	339
Same (68-inch cut)	3580	Д	ю <b>—</b> ю	3.08	27.26 26.86 27.71	72.74 66.31 68.42	3.75	98:52:	5.05	88.33 82.04 84.65	1.48	6.88	2.0	8, 717 8, 156 8, 415	15,691 14,681 15,147	285	339
Same (2 miles southeast of opening, room 30 off west heading 31, 48‡-inch cut).	4292	4	m –1010	3.23	28.83 26.97 27.87	71.17 65.97 68.17	3.83	.59	5.32	88.05	1.59	4.45	23.33	8,754	15,757	332	333
Same (2 miles east of opening, east heading 29)	4293	¥	0-10	2.81	26.52 27.29	67. 16 69. 10	3.51	5.59			0 1 0 0 0 0 0 0 0 0 0 0 0 0 0		2.2	8, 135	14,643	332	339
Same (run of mine, sample 1)	4338	O	10 H 64	3, 23	28.31 26.16 27.03	71.69 63.90 66.04	6.93	69:	4.99	78.33	1.42	7.94	2.4	8,683 7,819 8,080	15,629 14,074 14,544	33.2	
Same (run of mine, sample 2)	4353	Ö	20-0	3.56	29.05 26.24 27.21	70.95 63.25 65.58	6.95	88.69	5.14	86.98	1.58	5.62	00 00	8,683	15,629	332	
Henryellen, 2 miles southwest of; No. 6 mine, Mammoth bed, 5-foot cut.	3460	д	0100	2.51	33.82 34.68 8.68 8.68	70.68 58.85 58.31	6.83	34.4					1.0			316	340
Johns, Johns mine, Blue Creek bed, 913-inch bed (room 30, east heading 3, 1,600 feet east of mouth,	1148	В	2400	3.37	25.77 26.67	63.34	9.65	26.60					2.8	7,582	13,648 14,123	260	340
774-inch cut). Same (room 12, east heading 11, 5,800 feet south of slope mouth, 904-inch cut).	1146	g ·	01010	2.63	26.49 27.21	59.63 61.24	11.25	1.00.1					1.7	0) 110	60	260	340
Lewisburg, sec. 1, T. 17 S., R., 3 W., Mary Lee mine, Mary Lee bed bottom of main slope (lower bench, 38-inch cut).	2431	м	0 10 10	2.16	27.11 27.71 32.83	55.47 56.69 67.17	15.26 15.60	1.13					1.3			285	341

342	342	342	342		343	343	343	343	343	344	344	:	345	345	345
285	285	285	285		316	285	:			:			285	285	285
			13, 264		3 13,613				14,487				7 13,045		
			7,369	-	7,563	ζ, 44 			8,048				2,7,7,9		
1.2	2.0	1.6	2.2	2.2	∞.		1.3	1.6	1.5	1.7	1.9	1.8	2.1	1.0	1.4
					6.21	0. 50			22.29	6		6.41	10.1		
					1.68	1.0.			11.5	1 : :		1.70	::		
					76.03	to to			81.68	000		28.80	04.70		
					4.4.1 28:	0			5.02	07.0		5.18			
1.40	1565	1.05	69	.91	1.00	25.25	3226	1.66	1.46	888	2482		1.84	312	25:23:23:41:41:41:41:41:41:41:41:41:41:41:41:41:
13. 36 13. 36 8. 30	10.39	9.05	10.72	14.66	8.58	15.05	5.04	4.99	5.00	6.95	7.56	5.5	12.66	15, 44	9.85
57.14 58.60 67.64 59.94	67.40 59.53 61.64	61.28 67.50	59.01 68.68	58.85	58.95	55.82	66.02 66.02 67.41	62.79	66.22 5.45 5.45 5.45 5.45 5.45 5.45 5.45 5	64.09	65.37	64.16	57.58	56. 15 57. 95	68.93 61.28 62.57 69.57
27.34 228.04 32.36 28.87	32.51 26.68 27.62	28. 46 29. 38	26.92 27.85 31.32	25.38 26.21 30.88	30.66	26.86 27.48	26.87	25.26	25.90 26.53 26.53	26.62	24.35	25.93	26.41	25.31 26.12	31.07 26.80 27.37 30.43
2.49	3.40	3.14	3.35	3.16	1.98	2.27	2.07	2.46	2.38	2.51	2.72	2.69	3.35	3.10	2.07
#00H0	(C) (C)	2000	-010	-010	-010	2-010	2-010	2-03	m=010	010	0-010	0-010	2 63	2-0	ಣ್ಣಣ
д п	a	m	n	C	Ħ	р	4	Y	V	4	4	<	n	д	A
2432	1990	1919	1930	4011	3499	1768	10509	10507	10513	10506	10505	10514	1794	1793	1933
Same (upper bench, 24-Inch cut)	35-inch cut). Same (middle bench, 19-inch cut).	Same (top bench, 18-inch cut)	Same (left cross heading 10, whole bed, 774-inch cut).	Same (run of mine, from car at mine)	Lovick, near; Rutliffe mine, Gould bed, 27k-Inch cut	* Mineral Springs, sec. 17, T. 16 S., R. 3 W., Kosmo mine, Nickel-Plate bed, room 3, 31-inch cut.	Mulga, Mulga mine, Pratt bed (room 1, left entry 1, off north heading, 513-inch bed, 434-inch cut).	Same (last crossent in right entry 1, off left entry 1, 52-inch bed, 43-inch cut).	Same (composite of Nos. 10507 and 10509)	Palos, Palos mine, Big or Mary Lee bed (room 5, cross entry 1, off left entry 4, 71½-lnch bed, 70-inch	Same (room 1, cross entry 1, off right entry 4, 72;-inch bed, 71;-inch cut).	Same (composite of Nos, 10505 and 10506)	Pinkney, sec. 22, T. 16 S., R. 4 W., Tutweller No. 3 drift, Nickle Plate 302-inch bed (right heading 4).	Same (left heading 2)	Same (Pratt bed, 31-inch cut, 600 feet from main entry, left heading 7).

Table of chemical analyses-Continued,

Calorific value. Reference,	Calo-British Bul- of the of the chermal letin this ries units. No. bulle-	285		285 346		8, 529 15, 552 8, 427 15, 169 285 346 8, 540 15, 372		• •	285 347	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7, 424 13, 363 316 347 7, 685 13, 832 8, 458 15, 224		7 417 13 351 431 348
	Air-dry-ing loss.	4.		1.8	2.3	63	1.0	6	00	:	1.8		1.1
	Oxy- gen.				7.57	6.05	6.80 6.80	6. 99			8.30 .5.48 6.01		9,56
45	Nitro-gen.				1.56	1.73	27.73	1.80		:	1,53 1,58 1,74		1.02
Ultimate,	Car- bon.					8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8				-	73.81 76.40 84.11		74, 33
	Hy- dro- gen.				4.83	5.29	. 4. 9. 1. 85 3.	4.99		:	5.18 4.97 5.47		5.20
	Sul- phur.	1.79	1.68	1.86	12:23	.73	1.09	2.27	55.55	00.	2.34 2.42 2.67		. 79
	Ash.	13.03 13.33		10.33	11.03	1.87	2.79	4.89	3.53		8.84		9, 10
Proximate.	Fixed car-	57.70	59.96 61.50 68.87	63.53	58.63	64.58 64.58 64.58	3.8.2. 3.2.6.		3.68.0 2.08.0 2.08.0	10.70	57.08 59.08 65.04	_	52.50
Prox	Volatille matter.	27.00 27.63	27. 10 27. 80 31. 13	25.17 25.86 28.93	29.00	388	34. 32. 32. 42	322	30.33	05.40	30.69 31.77 34.96		36.01
	Mois-	2.27	2.51	2.68	3.23	1.32	2.18	1.86	1.63	:	3.30		2.39
at.	Con- di- tion.	- 600	. — 01 co	— 01 cc	- 01 c					° —	~0100		1
Sample.	Kind	<u> </u>	m	<b>m</b>	၁ -	n	m -	<b>x</b>	E		m		13
	Lab- ora- tory No.	1932	1755	1756	3948	3949	3944	2433	2430		3484		9339
	Locality, bed, etc.	ALABAMA—Continued.  JEFERRSON COUNTY—continued.  Pinkney, Tutweiler No. 3 drift—Continued.  Same, Pratt bed (900 feet from undin entry, right heading 9).	Republic, sec. 31, T. 16 S., R. 3 W., Warner mine, Pratt bed (43-inch cut).	Same (left heading 12, room 19, 43-inch cut)	Seloca, sec. 26, T. 14 S., R. 3 W., run of Seloca mine from car at mine, Jefferson bed.	Warrior, sec. 26, T. 14 S., R. 3 W., Watt mine (Black Creek bed, 39!-inch cut).	Same (Jefferson bed, 27-inch cut)	Wylam, sec. 36, T. 17S., R. 4 W., Pratt No. 4 mine, Pratt bed, 52½-inch cut (Kelso entry, room 5).	Same (room 1, cross heading 6)	ST. CLAIR COUNTY.	Davis (Tillman station), Margaret No. 1 mine, Hark- ness bed, 800 feet from slope mouth, main cutry, 44]-meh cut.	SHELBY COUNTY.	Aldrich, Aldrich mine, Montevallo bed (west heading 9

			MIN	AL.	LOLIO	O.F	COA	LN 1.	11 1.	III	UNI.	LLD	DIA	ILO.		99
348	319	340	340	349	349	349	340	350	350	351	351	351	351	325	352	352
431	316	316					316	316	431	431	431	431	316	316	200	980
11,605	15,016 13,858 14,250	15, 228 14, 447 14, 732	15, 331			14,251	15,374 14,456 14,920	15,448 14,049 14,571	15, 295 13, 990 14, 385	15, 281 13, 167 13, 613	14,945 13,799 14,348	15, 214 12, 892 13, 399	15,052	14,357 14,900 15,503	14,697	15,714
6, 417	8, 342 7, 699 7, 916	8, 9460 8, 026 8, 240	8,517			7,917	8,541 8,230 280	8, 805	81.7.5 81.18 19.18		7,971	7,162	8,362	7, 976 8, 278 8, 613	S, 165 S, 298	
9.8	1.1	17	6.	1.7	07	1.3	2.0	2.0	6.	1.7	63	2.1	œ	23. 4	œ	- 00 - 01
	7. 93	8.82 8.82 	9. 13			5. 13	6.10	10.43	6.93	7.36	9.75	7.00		5.85		
	1.12	388	1.40			1.36	+88 +88	 	25.23	855	228	08 I I		1.57		
	76.65	8. 62 0. 72	33. 43			3. 10	86.8	36. 22 77. 57 80. 46	77.96 30.16	35. 15 74. 25 6. 77	82.28	85. 18		83. 16 86. 52		
::	:88:	5.32	4			43	288	\$25;	0.625	858	55.28	98		5.26 8 8 8 8		
68				: : 385	894	#58 :	8 2 8 i	2823	24.5	8 4 5 7	96.5	67		. 52 . 52 . 52	.51	255 76 85 85
13.20	6.23	3. 18	4.89	3.71		4.48	3.30	4.56	5.70	8.63			S. 23 S. 41	8. 8. 8. 8.	4.95	7.14
47.11	66.96 60.14 60.14 60.14	6.05	62.56 82.95 83.95	61.67	66.14	66.36		86.88 8.68 8.68 8.68		55.93	88.5 88.8 88.8	56.30		68. 86 61. 09 63. 56		64.29 67.12 72.51
30. 17	33.56	35.22	32.18 32.18 32.18	32.56	33.86 34.26 34.14	888 888	32.48	34.38	34.28	\$3.8. 45.8.	825.55 83.65 85 85 85 85 85 85 85 85 85 85 85 85 85	32.59	28.05	33. 74 35. 02 36. 44		24. 42 25. 44 27. 40
10.97	2.75	2.60	2.21	3.21	2, 58	2.95	3.11	3.59	2.74	3.28	% %	3.70	2.12	3.65	1.60	4,00
H 03:	ಣೆಗಳು	2-01:	2000	2 - 01	m → 01	8-81	m = 01	m = 01 0	n=01:	0 - O	m → 01:	2-01	200	n → 01 co	-121	m → 01 m
B	В	n	٧	4	٧	4	p	E	n	m	2	2	п	=	m	m
9340	3745	3744	10503	10504	10502	10515	2996	3769	3771	9610	9611	9612	3646	3770	2538	2540
Same (room 37 off west heading 6, 34-inch cut)	Coalmont, Coalmont mine, Thompson bed, (58-inch cut).	Falliston, half mile east of; Falliston mine, Buck bed,	Glen Carbon, Glen Carbon mine, Black Shale (Gholson) bed (heading C, 37-inch bed, 37-inch cut).	Same (east heading 11, 35-inch bed, 25-inch cut).	Same (west heading 6, 36-inch bed, 36-inch cut).	Same (composite of Nos. 10502-10504)	Same (room 15, off east: heading 12, 3,000 feet in mine, 32-foot cut).	Helena, 49 miles northeast of, in Acton Basin, pros- prect, Thompson bed, mear mouth of slope	5 miles northeast of, Helena bed, Acton No. 2 mine, 68-inch cut.	Maylene, 11 miles southwest of sec. 20, T. 21 S., R. 3 W.; Chinax Juine, face of west heading 14, 2,000	Straven, Straven nine, Montevallo (?) bed, room 5, off west heading 5, 900 feet in mine, 2-foot cut.	Same (room 15, oil east heading 5, 900 feet in mino).	Sydenton, 1 mile west of, Star-Cahaba No. 1 (Elvira) mine, Gould bed, 4-foot cut.	Tacca, 1 mile west of; Star-Cahaba No. 2 mine (entrance to mine), Wadsworth bed, weathered, 3-foot cut. TUSCALOOSA COUNTY.	Abernant, sec. 18, T. 20 S., R. 6 W., Abernant mine, Jagger bed (sample 1).	Same (sample 2)

Table of chemical analyses—Continued.

Reference.	Page of this bulle-tin.	352		353	354	354	355	355	356		356	326
Refe	Bul- letin No.	260	260 260 400 400	260	260	260	260	260 400 400 260	400		55 54	261
Calorific value.	British thermal units.	0 0 0 0 0		14,364	10.04						13, 133 13, 435 14, 805	12,695
Calorif	Calo- ries.	0		7,980 8,140 8,696	0,0						7,296 7,464 8,225	7,053
	Air- dry- ing loss.	ц. 44	2. 2.	1.5	2.8	.7	1.3	œ.	1.8		0 0 0	0 0 0 0 0 0 0 0 0 0
	Oxy- gen.									•	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	Nitro-gen.			1.53	7.00	* * * * * * * * * * * * * * * * * * *					1.68	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Ultimate	Car- bon.											6 0
D	Hy- dro- gen.									:	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	Sul-	0.78		31118	1.1.		.1.37	1.602	28.28.2	•	1.09	1.10
	Ash.	50.	5.88 16.27 16.74	5.53	10.01	6.94	7.14	11.56	9.50	:	9.04	11.13
nate.	Fixed car-	59.70	62. 00 65. 97 52. 24 53. 73	62.18 62.18	58.99	64.97 64.96 66.11	58, 15	51.68	64.09 66.21	2	53.01 54.23 59.75	52.90
Proximate.	Vola- tile mat- ter.	30.80	28.71 28.71 29.53	35. 47 31. 55 32. 18	30.19	26.37 26.37 26.83 26.83	32.36	35.42	23.20	3	35.70 36.52 40.25	34.83
	Mois- ture.	% 65	2.78	1.96	3.81	1.73	2.35	2.08	3.21		2. 25	2.42
	Con- di- tion.	-	000000	20 to 10 to	2-031	m → 01 m	- 01 c	o → 01 c	2-010	2	-000	-010
Sample.	Kind.	<b>#</b>	А	m	В	B	2	В	A		¥	4
02	Lab- ora- tory No.	. 781	1185	1186	1164	2539	1210	1593	2543		1075	1076
	Locality, bed, etc.	ALABAMA—Continued. TUSCALOOSA COUNTY—continued. Brookwood, Brookwood No. 10 mine. Carter bed. 35-		Same, Brookwood No. 7 mine, Milldale bed 2-foot 23-inch cut, west entry 12.	Kellerman, central drift, Brookwood bed, 713-inch cut	Rock Castle, sec. 25, T. 20 S., R. 7 W., Rock Castle mine, Jagger bed, 500 feet from mouth,	Searles, Searles mine, Brookwood bed, room 3 off left heading 7, 64-inch cut.	Tidewater, Tidewater mine, Brookwood bed, 600 feet from drift mouth, 374-inch cut.	Yolande, Yolande No. 1 mine, main entry, 250 feet from mouth, Jagger 97-inch bed, 75-inch eut.	WALKER COUNTY.	Carbon Hill, three-fourths mile northwest of, Chickasaw No. 5 mine, Jagger bed (2,000 feet from foot of stope, west entry 3 off main north	entry, 534-inch bed, 454-inch cut). Same (1,200 feet from foot of slope, east entry 4).

356			357	357	:			358	358	358	359	329	329	360		360
332	197	333	261	261	261				:	:	:					335
12,596 13,219 14,798	12,350	11,785	14, 467		12,856			9,846	13, 838	9,641	12,964	14, 099	11,785	12,261	13,918	14,065 14,828 15,651
6,998 7,344 8,221	6,861	8, 1.47 6, 547 6, 816	8, 037	7,217	7,7,450	0, 930		5,470	2,688	5,356	6,245	7,833	6, 547	7, 713 6, 256 6, 761	7,732	7,814 8,238 8,695
7.2 2.4	90	1.7			- 30			5.2	4.0	6.5	13.5	12.5	5.3	4.6		4.6
		10.09			8.50								23.83 13.83 13.83			7.28 2.87 3.02
	1.54	1.83	 8448	T. 00	883	- A		9.61	523	<u>\$</u> 28	3333	. 52	1.03	£ 6.8	1.12	1.38
		81.57 66.21 68.93			71.58								68.76			80.68 85.05 89.78
		5. 31 4. 57			5.01 4.86								5.30			4.50
1.33	21.1.25	1.12	51.13	2523	1111	2		1.40	25.53	3.24	1.35	0.53	1.05	4. E. E.	.39	1.16
10.17			12.81	13.63	12.54			21.78	25.27	14.87	15.25	26.18	7.11	11.62		5.27
53.32 55.96 62.65 54.76													49.71 51.35 55.82			75.96 80.08 84.53
31.80 33.37 37.35 31.81													50.29 33.53 36.45			13.90 14.65 15.47
4.71	3.36	3.95	1.22	1.35	2.34			7.06	5.07	10.77	5.02	23.27	8.01	7.48		5.14
- c1 co -	C3 C2 ← C3	m → c3 :	co co	0-01	n-01			-010	m — 01	en – 01	m <del>–</del> 01	ee = ea	ಣ=ಣ	co == co	က	-00
< <	C	C	V	<	C			=	B	<b>A</b> .	B	B	В	B		Д .
3011	1225	3211	1077	1078	1201			6953	6952	6956	6955	6954	6951	6057		4427
Same (3,500 feet northeast of slope, left entry 3 off main north entry. 53-inch bed, 45-inch entry 53-inch 640, 45-inch 640, 55-inch 64	ot bed,	Same (run of mine)	Horse Creek, 14 miles west of, No. 8 mine, Horse Creek bed (1,450 feet from mouth of mine, left entry	Same (1.250 feet from mouth of mine, room 24 off left entry 2, 861-inch cut).	Same (over 1-inch sereen)	ALASKA.	ALASKA PENINSULA.	Chignik Bay, Alaska Packers' Association mine, cut across clean face.	Hook Bay mine	Thompson Valley, outcrop, upper bed	Whalers Creek mine, Whalers Creek bed	Coal Harbor (Unga Island), Coal Harbor bed	Herendeen Bay, Johnson Tunnel, cut across face of clean bed.	Same lower tunnel No. 1	BERING RIVER.	Bering Lake, tunnel on shore of; halfway between Poul Point and Dick Creek.

Table of chemical analyses-Continued.

	202	Sample.			Proximate.	mate.				Ultimate.				Calorific	Calorific value.	Reference.	nee.
Locality, bed, etc.	Lab- ora- tory No.	Kīnd.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sui-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulle- tin.
ALASKA—Continued. BERING BIVER—continued.			!														
Canyon Creek, tributary of, prospect; on east side, next below Hunt's cabin (elevation 630 feet,	4461	B	-80	7.77	8.02	75.59 81.96	9.24	0.66	3.48	73.99 80.22 50.16	1.41	10.63	6.0	6,983	12, 569 13, 628 15, 147	335	361
St-inch cut). Same (elevation 520 feet, 31-inch cut)	4433	a	2-01	7.43	6.86 7.41	71.35	14.36	62.55	92.29	75.73	1:22	24.0.0.	6.2	7, 60 6, 136 136 136	11,891	335	361
Carbon Creek, tunnel on south bank of, 11-foot bed	2492	B	ಣ್ಣಣ	4.22	8.77 13.37 13.96	91.23 78.80 82.27	3.61	1.523	3.68	89. 63	1.92	4.04	3.7	8, 440	60Z (cT	284	361
Carbon Mountain, east side, first opening from west on hillside trail, 10½-foot bed.	2483	A	m-010	13.89	5.01	85.49 73.87 85.78	8.40						13. 2	6,743 7,831 8,549	12, 137 14, 096 15, 388	284 335 335	361
East side, second opening from west on hillside trail 15+-foot bed.	2480	m	2400	œ 33	3 9 9 8 8 9 9 8	89.45	3.31	11.12.2					6.1			220 28	. 361
East side, 200 feet below hillside trail, lower 43-foot bed.	2487	m	2125	7.26	6.64	81.83 0.83	10.21	1.27					6.2			284 290 335	361
Carbon Mountain, west side, creek opposite mouth of Canyon Creek (elevation 950 feet, 31-inch cut).	4462	2	2400	7.64	.0.01 .0.03 .0.03	76.31 82.62	6.75	55.05	3.88 4.43 5.88	83.69 80.75 80.75	1.45	3.49	ۍ ده	7, 255 7, 855 8, 423	13, 059 14, 139 15, 161	284 284 284	362
Same (elevation 900 feet, 20-inch cut)	4459	n	2-01	2.95	7.02	75.74	14.50	1.08	9345	76.34	1.18	988	1.8	7,104	12,787	335	362
West side near crest of trail, between Hunt's and Green's trails (50 feet above 2479, 54-foot bed).	2481	В	2400	7.94	00000 00000000000000000000000000000000	78.53 85.31	4.33	28.		03.60	G : :	5	5.0	6	6	284 290 335	362
Same (50 feet below 2481, 37-inch bed, 34-inch cut).	2479	B	0400	4.43	10.14	80.78	4.65	55.55					2.5	7,578 7,929 8,336	13,640 14,274 15,005	284 290 335	362
West side, north end of Hunt's hillside trail, 15-foot bed.	2496	m	2 - 20	5.93	6.76	86.60 92.33	5.84 6.21	3223					 			284 290 335	363

			ALIVA	ADIO	III V	or c	OAL	0 11		L	1111.	ELD	DIAL	Lin.		-
363	363	363	363	304	364	365	365	365	366	366	366	366	367	367	367	367
335	335	335	335	335	335	335	335	284	335	335	335	335	335	335	335	335
	13, 952	15, 457 14, 564 15, 201	15, 608 14, 186 15, 046	15,826 12,348 13,219	13, 233	15.201	11, 723	15, 188	14, 445	13, 363	eee 'er	12,346	15,044	15, 761 9, 068 9, 659	14,432 8,386 8,386	13,945 12,544 13,597 15,043
	7,751	8,587 8,091 8,445	8, 671 7, 881 8, 359	8, 792 6, 860 7, 344	8, 490 8, 011	8, 445	6, 513	8, 438		8,7,8		6,859	8,358	5,756 5,038 5,366	8,018 4,659 4 941	7,747 6,969 7,554 8,357
7.0	2.4	3.3	5.0	5.5	∞.	5.20	3.9	4.7	60 00	8.0	1.9	.3	3.2	4.2	2.7	5.2
			2.74				8.86			12.47						13.70 7.38 8.17
			1.55				1.02	1. 24		1.35		1.09	1.32	1.96	 	1.35
			90.03 81.55 86.49				66.05			89.75 77.19 85.17						78.10 70.86 76.82 84.97
			4.4.8. 82.8. 78.28				2.50			24.4.23		3.68	4.4.4. 00.35.0	3.62 5.62 5.03 5.03 5.03	4.8.6 84.8 74.8	12.53.44
1.05	- 6.00 -	1.42	11.22		2.50	25.57.5 0.57.5	5885	3.07	40.4	285	5.27	4.14	1.11	5.25	6.47	10.76
2.14	6.04	2.50		12.67	5.14	2.59	17.30	20. 52	1.80	3,62	12.95	15.02	6.06	31.05	34, 15	8.86
89.90	92.04 77.10 80.06	88.85.88 88.30	90.67 85.79	71.53	83. 25. 83. 25. 83. 25. 83. 25. 83. 25.	83.45 83.45 83.45 83.45	68.34 8.09 8.09	83.35 66.03 71.51	91.95 84.23	74.02	73.31	71.32	86.92 77.47 80.71	86.15 51.11 54.45	81.35 47.10	78.32 67.83 81.33 81.33
7.12	13.17	8.71 9.09	9.33	9.76 9.21 19.86	10.86	12.98	13.85	5.78	13.12	14.33	11.36	10.74	13.08 12.46 12.98	12.48	13.05 23.05 23.04 23.04	21.68 15.57 16.88 18.67
8.31	3.69	4.19	5.71	6.59	5.89	6.03	5.51	7.67	5. 43	9.37	2.68	2.92	4.01	6.12	5.71	7.74
-20	20 H CZ	c	100-01	ω + α α	200	m – 01	m 01	. — €1		, , , o	2000	20 01	100-01			300 H 0100
В	Д	B	В	Ħ	B	A	B	В	B	В	Д	E	д	д	A	д
2482	4451	4435	4431	4460	4430	2488	4454	2478	4455	4428	2497	4463	4453	4436	4452	4437
South end of hillside trail, 10-foot bed	Clear Creek, opening on east bank of; 3 miles above the mouth, 4-foot cut.	Tunnel at base of falls, 60-inch cut	Tunnel on north bank, above the falls; 18-foot cut.	Tributary of; heading southeast of Monument Mountain, (elevation 1,450 feet).	Same (elevation 1,200 feet)	Falls Creek, cliffs on, 1 mile north of Bering Lake, Christopher prospect (10-foot bed, 7-foot cut).	Tributary of; half mile northeast of Christopher's cabin, 31-inch cut.	Fourth Berg Lake, 13 miles above, 34-inch bed	Kushtaka Ridge, opening on east side of (1 mile northwest of cabin, 3-foot cut).	Same (1½ miles northwest of cabin, 14-foot cut).	Tunnel on east face of, 790 feet above Lake Kushtaka, 145-foot bed (sample 1).	Same (sample 2)	Leeper Creek, section on; one-third mile above mouth, 8 to 11 foot cut.	Mount Hamilton, on gulch two-fifths mile southwest of: (lower bed, lower bench).	Same (lower bed, upper bench)	Same (upper bed)

Table of chemical analyses-Continued.

	ANALY	SES	OF C	COAL	SIN	Ti	HE U	LINI	ED 8	STAT	ES.			
ence.	Page of this bulle- tin.		298	368	368	368	369	369	309	370	370		370	370
Reference.	Bul- letin No.		335	335	335	335	335	335	335	335	335		379	379
Calorific value.	British thermal units.												9,643	8,548 10,501 12,031
Calorifi	Calo- ries.												5,357	5,834 6,684
	Air-dry-ing loss.		5.4	5.1	3.0	4.6	3.9	1.9	3.7	1.3	5.4		7.0	9.4
	Oxy- gen.												32.91 20.53	20.27
6	Nitro-												0.88	1.140
Ultimate.	Car- bon.												54.77	60.79 69.08 69.08
1	Hy- dro- gen.												5.51	
	Sul- phur.	,	0.61	3.36	1.98		*8.82	1.10	1.13		26.89.2		£. £. £.	5 4 4 4
	Ash.		5.23	23. 21	1.99	3.88	4.43	4.93	10.34	1.63	9.82		15.50	10.36
mate.	Fixed car-		76.12 80.94	85.41 63.94 8.94 8.94	79.75 83.27	85.04 76.81 81.42	84.91 77.29 81.31	85.28 85.98 89.89	94.08 73.34 76.68	85.97 79.68 81.39	69.55 74.26 89.96	00,000	23.61	34.92 34.92 49.14
Proximate.	Vola- tile mat- ter.		13.01 13.83	14.59 11.74 12.47	14.03	14.96 13.65 14.47	15.09 13.34 14.03	5.42	5.92 11.97 12.51	14.03 16.58 16.94	15.26	Illour	52.23	26.13 26.13 50.86
	Mois-		5.95	5.84	4.23	5.66	4.94	3.74	4.35	2.11	6.34		18.12	18.59
	Con- di- tion.		12	co co -	20-0	en = 01	100 H 03	∞ <del></del> 01	18-181	on — c1 :	n −1 01 01	0	-010	20 H C1 C1
Sample.	Kind.		a	=	m	n	m	B	В	В	д	-	g	g
ΣΩ.	Lab- ora- tory No.		2461	2493	2486	2495	2494	2485	2490	2489	2484		4457	4429
	Locality, bed, etc.	ALASKA—Continued.	DERING RIVER—continued.  Nevada Creek, tunnel near mouth of, 19-foot 7-inch bed.	Powers Creek, tunnel on; I mile north of Bering Lake, 12-foot bed, 162-inch cut.	Queen Creek, opening near (upper 27-foot bed)	Same (lower 31-foot bed)	Southwest of, opening on south branch, 17-foot cut.	Second Berg Lake, gulch at head of; 23-foot bed	Tokun Creek, lower tunnel on; 63-foot bed, 80-inch cut.	Trout Creek, Cunningham's upper tunnel, opposite house, 8-foot bed.	Tunnel, one-fourth mile below house, 33-foot bed	COOK INLET.	Kachemak Bay, north shore of (3 miles east of Homer Spit).	Same (1 mile west of Homer Spit, 6-foot bed)

370	370	371	371	371	37.1	371	371		372	37.5	37.5	373	373	374	374	374
379	379	379	379	379	379	379	379		280	580	280 280 280 280	380	280	530 530 530 530 530 530 530 530 530 530	13000	250 250 351
7,812	8,053 10,060	8, 793 10, 985	10,352	8,348 11,531	10,076	7,990	1,8,9,51 2,988 2,988 2,988		13,711	70) 000	14,868	15, 782				11, 968 12, 834 14, 814
4,340	6,544 4,474 5,589	6, 877 4, 885 6, 103	6,862	6,406	5,598	5, 497	6,901 4,581 5,549 6,823		7,617	000000	8,335	8,768				6,649 7,130 8,230
19.4	7.5	8.2	13.0	20.8	9.6	8.6	6.4			1.6		1.0	1.9	1.6	00	4.1
							23.55 30.94 18.70 23.00									
1.18	1.28	1.49	1.29	1.19	22.65	82.8	1.15									
							69.69 45.25 54.81 67.40									
							5. 19 5. 44 5. 45									
. 19	8,42	8538	£88.	4.4.33	88.4	÷812	1.63		558	22.	884	<u>.</u> 2 2 2 2 5	46.	36.85	52.25	544.
5.62	14.99	8.85	9.22	3.75	8.40 10.59	16.38	15.42		6.05	10.82	4.94	27.30	23.48	15.53	4.47	12.47
							28.89 34.99 43.03									75.26 70.83 81.49
							28. 25 28. 25 46. 33 56. 97		7.08	19.14	19.60	20.81 17.01 17.44	17.47	19.32	3883 8893	24.74 14.96 16.04 18.51
28.06	19.95	19.96	22.31	27.60	20.68	19.45	17.44		2.55	2.58	. 90	2.46	2.90	4.36	2.24	6.74
	o → c₁		on ⊶ 010	2-010		2-01	n → 01 m		-010		2-01	m-010	2-010	2-010	2-01	2000
В	В	В	Д	B	B	В	В		В	m	B	g	В	B	A	В
4426	4432	4458	4465	4425	4464	4434	4456		2222	2215	2227	2216	2220	2214	2217	2219
North shore of, several miles southeast of Anchor Point, three-fourth mile west of Diamond	Creek). Same (14 miles east of Troublesome Gulch)	Port Graham, north shore of	Tyonek, about 4 miles south of; on west shore of Cook Injet (near south end of Tyonek beach).	Same (loose lignite pebbles from a conglomerate).	3 miles south of, first outcrop, west shore of Cook Inlet.	Northwest of, on Beluga River, above canyon and rapids (10 miles up).	Same (10f miles up)	MATANUSKA.	Boulder and Hicks Creeks, between; north side Mata- nuska Valley, 18± miles from Chickeloon	Chickaloon Creek, Watson's Tunnel No. 2, 15-foot 1-inch bed, 12-foot cut.	Watson's Tunnel No. 2 (selected), 5.2-foot bed	Watson's Tunnel No. 3, 94-foot bed, 7-foot cut	Watson's Tunnel No. 5, 10-foot 10-inch bed, 94-inch cut.	3 miles above; on south side of Matanuska River, 7-foot 7-foot 7-foot cut.	Coal Creek, 3 mile above mouth, 5-foot bed	mile above mouth, 8.6-foot bed

Table of chemical analyses—Continued.

Reference.	Bul- letin this No. bulle- tin.	289 375	327 289 375 290	289 289 290	375	289 376 290	327 289 376 290	289 290 290	170	379 377	379 377	379 377
Calorific value.	British thermal units.		12,1	13,738	- - - - - - - - - - - - - - - - - - -	<del>*</del> : :		13, 093	, ,			
Calorii	Calo- ries.		6,299 6,744	7,632	7,303	8,237		7, 274	0,040			
	Air-dry-ing loss.			1.8			4.6			34.1	37.8	34.7
	Oxy- gen.				12.38	11.79				45.89 19.72 21.03	49.58	21.86
e e	Nitro-gen.				1.50	T. O.				.67 1.08 1.15	1.09	1.16
Ultimate.	Car- bon.				73.02	80.50			8 8 8 0 8	41. 79 67. 21 71. 69	38.64	39.96
ָרַ	Hy- dro- gen.				4.83	5.17				6. 12 4. 70 5. 01	7.35	4. 85 7. 26 7. 26
	Sul-	0.42	74.	882	2223	.88.4	94.52.5 28.	8 8 8 8	00.	1.05	.48	88.
	Ash.	6.60	10.87	12.13	9.36	11.82	5.00	10.36	0 0	3.88	3.32	
nate.	Fixed carbon.	51.32	58. 42 48. 23 51. 63	58. 43 64. 99	59.30 59.30	65.49 49.31 51.38	58.60 48.90 54.36	57.56	10.70	32. 16 51. 72 55. 16	29. 56	31.07
Proximate.	Vola- tile mat- ter.	36.52	41.58 34.30 36.73	41.57 21.85 22.51	30.60 31.28	34.84	41.40 36.05 40.08	28.32 29.03 29.04	32. 4B	26.14 42.04 44.84	24.67	25.38
	Mois-	5.56	6.60	2.93	2.18	4.03	10.05	2.50		37. 82	42. 45	39. 66
	Con- di- tion.		10-0	0-01	0-01	m 01	m-0	en − en e	20	-000	10	: co c
Sample.	Kind.	m	А	А	4	д	д	д		я	В	A
01	Lab- ora- tory No.	2226	2224	2218	4754	2225	2221	2223		6944	6942	6946
	Locality, bed, etc.	ALASKA—Continued.  MATANUSKA—continued. Eska Creek, west bank, 3 miles above trail, 2.7-foot cut.	3 miles above trail, 3.3-foot bed	Kings Creek, west bank, at upper bridge, 9-foot 11-inch bed, 69-inch cut.	Matanuska Valley, anthracite ridge, 43-foot bed, 10-inch cut.	Moose Creek, 4 miles above trail, 66-inch cut	4½ miles above trail, 123-foot bed, 138-inch cut	Young Creek, west lank, 3 miles above trail, 12-foot cut	SEWARD PENINSULA.	Chicago Creek, tributary of Kujruk River, latitude 55° 55′ N., longitude 162° 25′ W., Chicago Creek mine, cross cut on lowest level (0 to 12 feet	Irom hanging wall). Same (12 to 24 feet from hanging wall)	Same (24 to 36 feet from hanging wall)

377	377	377	377	2110	377		378		378	378			378		379			379
379	379	379	379	379	379								431		431			316 326
						:	11,203	14,510	11,230	15,016 6,266 7,808	11,192		10,489 11,545 13,599		10,800 11,984 13,585			
							6,224	8,061	6,239	8,342 3,481 4,328	6,218		5,827 6,414 7,555		6,000 6,658 7,547			
33.5	36.8	33.7	28.3	30.3	33.1		2.6		9.	5.8			1.5		2.0			2.8
47.13	22. 40 16. 53. 7	20.54 20.54 20.54	23. 20 40. 23 16. 97	24.85 42.26 17.78	22. 55 42. 92 17. 17	23. 25		:							19. 71 12. 14 13. 76			
1.14	1.22	1.21	1.21	1.05	1.22	I. 21		:			:				1.13			
40.47	57. 88 67. 88	74.82 37.86 61.37	69.33 31.11 45.98	67. 32 35. 46 54. 07	68. 56 32. 51 50. 72	68. 68		:			:				62.00 68.80 77.98			
6.99	4.7.4 202 82 82				6.28 3.57			:			:				5. 42			
1.17	1.25	1.04	1.65	1.93	2.66	2: 03	288	. 54	28	8:1:2	. 30		1.28 1.41 1.66		1. 12 1. 24 1. 41			77.
3.99	5.55		21. 45	13.86	16.76	:	17.11	:	23. 10	24. 40	;		13.72		10. 62			3.03
					53. 75 25. 32 39. 50		46.95			72, 17 22, 72 28, 32			43.86 48.28 56.87		46.86 52.00 58.94			79.35 82.46 85.04
					46. 25 22. 02 34. 35		30.26			27. 83 33. 13 41. 28			33. 27 36. 62 43. 13		32. 64 36. 22 41. 06			13.96 14.51 14.96
38. 53	40.13	38.31	32, 34	34. 42	35.90		5.68		2. 10	19.75	:		9.15		9.88			3.77
1 2	e - €	:0 <del></del> 01	m=0	0 H 0	n ⊢ α ι	,	-620	2	-070	m − c3	က		H0169		400			10100
М	В	Д	В	A	В		В		¥	4			д		М			м
6941	6943	6940	6947	6948	6945		5796		5794	5795			8122		8123			3371
Same (36 to 48 feet from hanging wall)	Same (48 to 60 feet from hanging wall)	Same (60 to 72 feet from hanging wall)	Same (72 to 84 feet from hanging wall)	Same (84 to 96 feet from hanging wall)	Same (95 to 104 feet from hanging wall, to the foot wall).	SOUTHEASTERN ALASKA (ADMIRALTY, ISLAND).	Murder Cove	YUKON RIVER.	Charley Creek, near Copper Creek, Jim Henderson claim, No. 2 bed.	Williams Creek, 6 miles out from Eagle, No. 3 bed	ARIZONA.	COCONINO COUNTY.	Tuba 14 miles southeast of; Tuba Indian School mine, drift 100 feet from mouth of mine, 41-foot bed.	NAVAJO COUNTY.	Oraibi, 3 miles east of; Oraibi Indian School mine, entry 50 feet from mouth of mine, two lower benches, 562-inch bed.	ARKANSAS.	FRANELIN COUNTY.	Altus, 2 miles west of; sec. 17, T. 9 N., R. 26 W., Garritz mine, center cross entry, lower bench of 25-inch bed in Hartshorn horizon.

Table of chemical analyses—Continued.

Lab- ora- tory No.
3798
1040 B
1042 B
3369 B
A 0511
ИЗ1 Д
1331 C
3370 B
2587 A
2588

382 382	383	88 88	384	786 786	38. 38.
332 316 326 326 326	326	332 332	316 326 316 326	326 316 326	316 326 332 336 336
12, 460 15, 421 15, 421 13, 714 14, 011 15, 367	13, 774 14, 167 15, 624 16, 002	6, 877 9, 714 12, 266 6, 356 10, 494 12, 497	13, 702 13, 991 15, 460 15, 689		14, 087 14, 373 15, 489
6,922 7,301 7,619 7,784 8,537	7,652 7,870 8,680 8,890	3, 265 6, 397 6, 813 7, 830 6, 943	7,612 7,773 8,589 8,716		7,826 7,985 8,605
4.4	63	32.6	9 4	0. 5. 5. 5.	2.6
25.28 27.28 25.28	3.95 1.69 1.73	45.81 17.77 21.17	2.59 2.02 2.02		1
693	11.50	1.12	1.66 1.66 1.69		. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
72. 43 76. 39 89. 64	78.71 80.95 89.28 92.21	36. 33 59. 98 71. 43	80.28 81.97 90.58 92.39		+ + 0 0 + 0 + + 0 0 0 0 + 0 0 0 0
	4.8.32 2.32 3.35	6.98	3. 90 3. 90 3. 90 3. 90		
9389888888 6388888888	2.79		1.81 1.85 1.74 1.78 1.96	29.8 28.8 29.8 29.8 29.8 36.8 36.8 36.8	2.21 2.30 2.41 1.05 1.05 1.15
14.01 14.78 8.64 8.83 10.16 10.39	9.07	12.58 20.79 7.81 13.29 9.71 16.03	9.40	24.00 25.76 5.79 5.98	75.86 4.38 2.2 78.86 4.55 2.3 82.62 7.06 1.0 77.65 7.00 1.0 82.62 7.20 1.0
70.31 74.16 74.16 77.73 77.83 77.83 77.85 87.85 87.85	73.47 75.56 83.34	22.57 22.57 22.98 22.98 24.31 24.37 40.24 47.92	77. 67 79. 53 88. 00 78. 82 88. 93 88. 93	43.40 62.77 66.40 68.73 73.10	75.86 78.86 82.62 75.05 76.58 82.52
10.880 11.082 11.082 12.34	14. 69 15. 11 16. 66	25.35 27.96 27.96 26.89 26.49 52.08	10.60 10.85 12.00 9.81 11.07	25. 25. 25. 25. 26. 90	
2.11	2.77	39. 50	2. 33	6.85	2 15.90 15.90 2 11.99 15.90 2 3 17.482 3 17.482 3 17.482 3 17.482
	H01004	-00-00-00	-000-000#		No-on-
Одд	Д	4 4 0	ш ш	<b>m m</b>	n 4
3368	3174	2648	3177	3503	2599
Near; SW. 4 sec. 14, T. 9 N., R. 24 W., Eureka mine (Spadra bed, 44-inch).  Sec. 23, T. 9 N., R. 24 W., Needmore mine (Spadra bed, 41-inch).  Logan County.	Parls, sec. 10, T. 7 N., R. 26 W., Paris mine, Paris bed, 26-inch cut.	Lester, 7 miles west of, Lester No. 2 mine, 300 feet from drift mouth (left entry 2, 64-foot cut).  Same (air course, 5-foot bed)	Russellville, sec. 22, T. 7 N., R. 20 W., Russelville mino, Shinn Basin bed. a  Sec. 21, T., 7 N., R. 20 W., Southern mine, Shinn Basin bed. a  Scorr county.	Bates, NE. 4 NW. 4, sec. 21, T. 3 N., R. 32 W., Seymour mine, Hartshorne bed (3 upper benches, 99-finch cut).  Same (lower beneh, 4-foot cut)	Auburn, a few miles north of, sec. 20, T. 7 N., R. 29 W., Coal Ridge mine, Charleston hed (Sky or Coal Ridge vein), 18-inch cut, weathered.  Bonanza, No. 26 mine, Hartshorne bed (1,400 feet southeast of shaft, main east entry, 36-inch cut).

a Varies in thickness from 30 to 36 inches.

Table of chemical analyses-Continued.

Sample. Proximate.
Con- Mois- tile car- tion. ture. mat- bon.
2.12 16.17
C 1 5.26 14.71 55.22 2.27 2.27 2.27 3 52.22 2 2 2.27 3 58.28 3 3 21.04 78.96
95 18.70
78 16.60
C 1 2.23 16.39 74.25 27.25 3 16.39 74.25 3 3 2 2 2 2 3 3 2 3 3 3 3 3 3 3 3 3 3
4.53 16.52
90 18.35
3.54 14.89
B 1 2.80 10.39 84.41 2 16.39 76.19 3 17.70 82.30

388	388	380	389	389	390	390	390	391	391	391				305	392
316	316	326	316	326	326	326	316	781	197	388	332	261 316 48	332	326	326
				13, 588 14, 038 15, 530	15, 953			14,434	10, ((2	14,017	700 (PI	13, 129 13, 569 15, 602	15,775 11,369 12,290 15,253	15,413	14,096
				7,549	8,808			8,019	6, 100	8,073	0,169	7, 294 7, 538 8, 668	8,764 8,828 474 8,474	8,563	7,831
1.6	1.9	1.4	1.6	2.4	3.0	2.8	ες. -4.			2.0	3.5	2.1	6.7	01 01	
				3.95	1.23								85.25 25.25		
				1.57	7.80 1.80			1.7	1.07	* * * * * * * * * * * * * * * * * * *			1.38		
				78.37 80.97 89.57					0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0			89.35 65.54 70.85 87.93		
				3.50	4.02				0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			4.4.5.4. 34.7.4.		
				33.22	88.8	38.83	1.02	1918	1.15	1.320	322	1.28	1.06	1.72	25.02
5.73	7.13	11.66	10.04	9.29	3.93	3.83	8.09	7.49	6.98	8.05	7.14	12.61	17.97	7.39	9.62
				72.66 75.07 83.04	76.00	75.46	69.97 72.98	24.35.6 54.35.6 54.35.6	74.33	72.04	25.05	66.69 68.93 79.26	59.38 64.18 79.67	74.66	83.34 71.52 72.21 79.98
16.85	16.13	14.31	16.25	14.84 15.33 16.96	16.57	17.16	18.15	17.88 18.08 18.08	18.83	16.66	17.52	17.46 18.04 20.74	15.16 16.39 20.33	14.92	16.66 17.91 18.08 20.02
2.44	2.65	2.19	2.26	3.21	3.64	3.55	4.12	1.02	.75	3, 53	4.00	3.24	7.49	3.03	.95
-010	2-010	20-01	m-010	n-0101	4-01	n → 01 0	20-01	m c3 c	0-010	n → c10	0-010	0-40360	4-0100	# 01	m-01m
<b>a</b>	a	B	n	=	22	ñ	=	V	<	4	4	၁	C	~	=
3154	3158	3372	3175	3173	3157	3497	3500	1045	1046	2585	2586	1114	5089	31-49	1030
Sec. 20, T. 5 N., R. 31 W., Red Rock mine, Harts-liorne bed, 36-inch cut.	Same, Denman mine (36-Inch cut)	Fort Smith, 5 miles from; Massard Prairle, sec. 30, T. 8 N., R. 31 W., Hartshorne bed, 27 to 30	Greenwood, see. 16, T. 6 N., R. 30 W., Banner mine, Hartshorne bed, 63-inch cut.	Sec. 12, T. 6 N., R. 31 W., Greenwood No. 1 mino, lower part of mine, 72-inch cut.	Hackett, 2 miles east of; sec. 18, T. 6 N., R. 31 W., Bates & McWilliams mine, Hartshorne bed, 31-	Sec. 21, T. 6 N., R. 32 W., Hackett City mine, 33- foot cut, Hartshorne bed.	Hartford, 2 miles northeast of; NE. 4 SE. 4 sec. 14, T. 4 N., R. 32 W., Patterson No. 1 mine, Harts-	Huntington, 1 mile west of; No. 3 mine, Hartshorne bed (cast entry 4, north side, 64-foot cut).	Same (east entry 4, south side, 85-inch cut)	Same (half mile south of shaft, east entry 7, off main south entry, 70-inch cut).	Same (900 feet west of shaft, back entry, first dip, 64-foot cut).	Same (over 13-inch screen, 44 tons)	Sume (stack)	Jenny Lind, No. 17 mine, S.W., 4 sec. 32, T. 7 N., R. 31 W., Hartshorne bed, 72-inch cut.	Same (6-foot cat)

Table of chemical analyses—Continued.

00	Page of this bulletin.	392	292	392	:		393	393	393	
Reference	Bul- letin t No. bl	326	316	1928	: :85283 :83283	261 326 48	326	332	100 m	332
value.	British thermal units.			14,162 14,392 15,651	13,464	15, 800		14,236		12,690 13,424 15,318 15,001
Calorific value.	Calo- th			7,868 7,996 8,695	7, 480			7,909 1 8,236 1		7,050 7,458 8,510 8,667
	Air-dry-ing loss.		4.01	00 00	1.4	3.0	C1 :	3.5	4.9	4.9
	Oxy-gen.				6.08	4.86	:			98888
	Nitro-gen.				1.53	1.80				1.52
Ultimate.	Car-			· · · · · · · · · · · · · · · · · · ·	75.31	88.71				72.63
Ď	Hy-dro-gen.	And the same of th		* 0 0 1 0 * 0 0 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 0 0 0 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4.17					3.94
	Sul-	1.64	1.51	2442.1.	\$5.88.88 \$5.88.88	1.26	1.23	25.53	320.50	82224 8244
	Ash.	7.65	6.32	7.91 8.04 12.66	11.63	13.81	9.23	5.91	9.34	11.69
nate.	Fixed carbon.	74.35	81.21 76.06 78.56	83.83 74.28 80.77 69.03	80.54 66.71 68.20	68.50 71.20 83.14	73.27	73.26	69.76	81.33 66.57 70.42 80.36
Proximate.	Vola- tile mat- ter.	17.20	18.79 14.64 15.12	16.14 17.40 17.68 19.23 16.68	19.45 19.47 19.91	13.89 14.44 16.86	15.55	17.51 16.86 17.56	16.02	18.7 16.27 17.21 19.64
	Mois- ture.	08°	3 10	1.60	2.19	3,80	1.95	3.97	5.38	5.47
	Con- di- tion.		10-01	: :	200-01	w4∺0100	-23	es ← es e	0-0	∞=0×4
Sample.	Kind.	4	В	4 4	O	0	m	Ā	Ÿ.	0
	Lab- ora- tory No.	1031	3153	1115	1296	1542	3151	2593	2594	2688
	Locality, bed, etc	ARKANSAS—Continued.  SEBASTIAN COUNTY—continued. Jenny Lind, No. 17 mine—Continued. Same	Same (one of the west entries, 76-inch bed)	Near; sec. 38; T; 7 N., R; 32 W;, No. 18 mine, Jenny Lind bed (main east slope, 523-inch cut). Same (main west slope, 32-foot cut).	Same (over 13-inch screen, 11 tons)	Same (slack, 12 tons)	Same (52-inch cut)	Midland, 4 miles southwest of; Mammoth Vein mine, Hartshorne bed (950 feet northwest of slope,	Same (900 feet northeast of slope, entry 1, 53-inch cut).	Same (lump, over 2-inch perforated screen)

39.44	395	396 396	396
33.00 33.00	290 290 290	290 285 316 316 316	
12,000 15,400 16,400 16,777 16,777 16,700 16,700	8,105 9,887 12,383 110,488 110,840 13,840 13,14	9,241 10,868 12,677 12,447 13,376 14,336 14,855	9,691 11,533 13,225
8,77,77 196 17,789 17,7	5,493 6,863 7,726 7,161 7,397	6, 038 7, 043 7, 943 7, 965 8, 253	5,384 6,407 7,347
G	4.6	C C C C	4.3
8 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	27.53 13.60 16.79 17.60	16.14 10.70 11.47 12.05	23.87 11.51 13.20
1.28	6888888	1.17 1.86 1.42	1.02
68. 73.33. 87. 41. 80.00	58. 09 71. 73 75. 20	66.01 70.94 76.03 79.87	54.18 64.48 73.94
4044 4358	8.4.3.3 8.4.3.3 6.1.3	6.05 6.05 6.05 6.05 6.05	5.96
442 S18115282829	08.00 4.00.00 4 08.00 4.00.00 4 08.00 4.00.00 4 08.00 4.00.00 4 08.00 4.00.00 4	5.57 6.555 7.64 7.66 6.64 7.17 7.80 7.80 7.80 7.80 7.80 7.80 7.80 7.8	4.38 5.21 5.97
15.00 16.11 16.11 16.12 10.30 10.40 10.40	18, 03 21, 88 16, 37 19, 97 19, 01	12.14 14.28 11.37 12.24 6.23 6.70	10.75
25.55.88 27.77.76.88.31.18 27.77.76.88.31.18 27.77.88.31.18 27.77.88.31.18 27.77.88.31.18 27.77.88.31.18	23. 29. 29. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20	34, 49 40, 56 47, 32 37, 03 39, 87 45, 43 46, 12 46, 22	39.59
15.23 16.33 16.33 17.07 17.13 17.13	6.50 8.60 8.60 8.60 8.60 8.60 8.60 8.60 8.6	38. 40 45. 16 52. 68 47. 89 47. 89 50. 18 50. 18	33.69 40.09 45.97
6.89 1.00 3.01	17.59	7, 13	15.97
च छ छ या च छ छ च छ छ च छ छ छ च छ छ छ । • • • • • • • • • • • • • • • • • • •	-0100-0100-01004		-01co
O # 4 # #	m m o	я я я	д
3150 3150 3150	1606	3772	7914
Same (slack, through 2-inch perforated screen).  Montreal, sec. 18, T. 5 N., R. 32 W., No. 5 mine, lower slope outry, Hartshorne, 33-foot bed.  Sec. 13, T. 5 N., R. 32 W., Cherokee No. 6 mine, Hartshorne bed (34-inch cut).  Same (33-inch cut).  Sec. 19, T. 5 N., R. 31 W., Branner mine, Hartshorne bed (42-inch cut).  CALIFORNIA.	Testa, Testa mine, Eureka (Summit) lignite bed  Same	Los Medanos (mail. Black Diamond), Black Diamond mine, 1,500 foet from shaft, 32-inch bed, 31-inch cut.  MONTEREY COUNTY.  Stone Canyon, sec. 14, 7, 22 8., 18, 13 E., 26 miles from San Mignel (1,600 feet east of sinit, 300-toot level, 16-foot bed, 54-foot cut near top).  Same (2,000 feet from shaft, 12g-foot cut)	Hernandez, about 84, miles northwest of, Trafton mine, NW, 4 NW, 4, sec. 21, T. 17 S., R. 10 E., 75 feet in mine at end of main stope (Trafton bed), 59-inch cut.

Table of chemical analyses—Continued.

ence.	Page of this bulletin.	397	397	397	397	398
Reference.	Bul- letin No.	381	381	381	341	381 261 48 261 48 261 48 48
Salorific value.	British thermal units.	9,911	12, 213 12, 823 8, 638	11,619 9,262 11,745 12,805	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1, 8016 11, 804 11, 804 11, 804 12, 807 12, 807 13, 405 13, 404 11, 701 11, 701 13, 206
Calorifi	Calo-	5,506	6,755 7,124 4,799 5,973	6,455 6,455 6,145 6,525 7,114	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5, 342 7, 101 7, 141 7, 147 7, 148 7, 480 7, 480 7, 480 7, 580 7,
	Air- dry- ing loss.	11.4	13.0	16.5	2.2	13.4
	Oxy- gen.	31.23	30.09	16. 50 16. 50		30. 60 16. 79 18. 08 14. 97 16. 16. 16. 16. 29
	Nitro-gen.	0.99	1.28	1.26		11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1
Ultimate.	Car-	57.47	74.36	76.05 70.21 76.54		56. 38 69. 74 75. 09 70. 66 76. 28 76. 84
ב	Hy- dro- gen.		6.02	5.17 5.17 4.54 95	0 1 1 0 1 0 0 0 0 0 0 0	5.93 6.07 7.06 7.07 7.03 7.33 8.33
-	Sul-	0.27	3. E. 4	44.888	1.14	21:82:28:54:28:28:28:28:28:28:28:28:28:28:28:28:28:
	Ash.	3.86	6.00	6.53 8.28 28.28	9.97	5, 76 7, 12 7, 12 8, 61 8, 61 8, 64 7, 37 7, 37 12, 00 12, 00 12, 00 12, 00 12, 00 12, 00 13, 00 14, 00 15, 00 16,
mate.	Fixed car- bon.	46.18	59. 74 43. 60	58. 63 44. 21 56. 07 61. 13	45.75 50.55 56.81	72,44,75,75,75,75,75,75,75,75,75,75,75,75,75,
Proximate.	Vola- tile mat- ter.		30.75 30.75	28. 11 35. 65 38. 87	34.78 38.43 43.19	83.83 93.84 93.81 94.83 94.83 95.55 96.88 97.77 98.83 98
	Mois- ture.	18.85	19.65	21.15	9.50	19.15 20.02 21.84 18.68 17.95
	Con- di- tion.	=	n ⇔ ⇔ c	0 10 H 00 I		1001001001001004100
Sample.	Kind.	m	Д	я	м	C C P P B
Δ2	Lab- ora- tory No.	6832	6833	6834	4175	6540
	Locality, bed, etc.	COLORADO.  ADAMS COUNTY.  Lafayette, about 2½ miles east of; sec. 6, T. 1 S., R. 68	W., Parkdate mine, 200 feet east of 100t of slope, close to fault, 4-foot cut (special sample to show effect of fault movement).  Same (upper bench, 64-inch cut), 150 feet west	Same (lower bench, 44-inch cut), 150 feet west of slope).  ARCHULETA COUNTY.	Pagosa Springs, 12 miles northeast of; NB. 4 sec. 36, $\Gamma$ , $36N$ , $R$ , $IW$ , Kleckner mine, 5½-foot bed .	Lafayette, I mile southeast of; sec. 1, T. 1 S., R. 69 W., Rankin mine, 200 feet north and 200 feet east of shaft, 73-inch cut.  Simpson mine, lower bed (room 23, off southwest entry 23, 14-foot cut).  Same (room 5, off northwest entry 4, 11-foot cut).  Same (run of mine).

308	390		399	399	399	399	400		900	400		400	400	400	101	401
rs	70	re	381	381	381	381	381		368	368	368	341	341	341	341	341
12,418	13, 057	9,064	13, 239	9, 524 11, 972	12,780 11,880	9,733	12, 2817		13, 640 13, 993 14, 747		13,379	12,636	13,601	13,529	13,681	13,671
5,604	7, 25th	5,591	7,355	6,651	6.5.300	5,407	6, 945 6, 526 7, 081		7,578		7,433	7,020	7,556	7,516	7,7,5 1938 1909 1909	6,883 7,595 7,840
1.3	5.4	5.50	15.1	14.1	9.8	12.6	9.0		2	6.	6	1.4	1.1	1.7	90	3.6
							18.63.53 14.89 14.89									2812
		1.58	388	#21 #21 #21	3883	48%	1111				1.02	22.28	85.55	388	888	1.55
							75.26 58.51 70.77 74.97									69.94 77.17 79.66
		5.99	4.52	4.6.4. 20.23	6.0.4. 5.0.2.9.	26.8	4.7.4.7. 8.8.00 8.00 8.00 8.00 8.00 8.00 8.00									5.28.2
37.5	983	56.84	26.4	<u> </u>	4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	<b>\$</b> 888	8.5.8		828	5.8	68.41	2888	9.4.28	8881	188	5555
3.98	3.41	4.70	3.55	5.03	6.25	4.05	4.61		5.13	4.60	4.81	10.07	4.37	5.35	25.52 25.52 26.52	3. 2.
							\$5.55 \$6.55 \$6.55 \$6.55		54.53 54.53							58.59
							8.8.8.4 8.8.8.8		8.54 8.88							38.23
18.77	21.08	19.28	21.63	20.45	18. 79	18.86	17.32		2.52	4.38	3.29	2.41	25.3	2.64	3.37	9.37
-010	2-03 c	2-01	es <del></del> es :	n → 01	m — 01 c	20 m 03 (	200		c1 co	O1:	n-01:	m — 01 :	0-010	2-01:	n <del></del> 01 €	3-0355
V	4	၁	=	=	a	=	#		<	٧	0	m	m	=	æ	=
792n	793р	8030	6838	6837	6839	6835	9889		378p	379D	3990	5533	5531	5532	5760	5527
Same (1,500 feet southwest, room 9, oil entry 87, lower bed).	Same (3,000 feet west, room 6, off entry 69, lower 7-foot bod).	Same (run of mine)	Louisville, near; sec. 8, T. 1 S., R. 69 W., Aeme mine, north of fault (900 feet north and 400 feet east	Same (300) feet south and 950 feet east of foot of shaft, 55-inch cut).	Same (800 feet south and 950 feet east of foot of shaft, south of fault, 40-inch cut).	Marshall, northwest of; sec. 14, 7, 18, 70 W., Mitchell-Monarch mine (75 feet north and 350 feet	east of too of small, 235-100t level, p-100t cut.).  Superior, see, 24, 77, 18., 18. 70 W., Industrial mine, 7- foot bed (4,250 feet cast and 450 feet south of shaft, 84-linch cut.).	DELTA COUNTY.	Bowle, King mine, NE. 1 NE. 4 sec. 15, T. 13 S., R. 91 W., Juanita id-boothed, (900 feet northwest of opening, room 1, first buttentry, west, 32-inch	Same (1,070 feet N. 27° W. of opening, 77-inch cut).	Same (run of mine, 34 tons)	Same (700 feet from opening, upper 2 benches, 67-inch cut).	Same (700 feet from opening, lower bench, 63-foot cut).	Same (500 feet from opening, lower bench, 64-foot cut, "doad" coal).	One-half mile northwest of: King mine (old workings) 700 feet from mouth, 4-foot cut.	3 miles southwest of: 3 miles north of Paonia, SW. 4 SW. 4 sec. 17, T. 13 S., R. 91 W., Cooperative mine, 3W feet in, lower bench 85 foot cut.

Table of chemical analyses-Continued.

ence.	Page of this bullotin.	Í	402	402	403	403	403	404	404	404	405	405	406
Reference.	Bul- letin No.		341	341	341	341	341	341	341	341	341	341	341
Calorific value.	British thermal units.		10,229	13,421	13,659 10,201 11,857	13,577 10,557 12,497	13,345 10,701 12,841	13,482 8,159 10,514	11, 124 11, 113 12, 199	13, 952 10, 037 11, 623	12,832 9,580 11,848	13, 136 9, 364 11, 306	12, 991 10, 109 12, 087 13, 444
Calorifi	Calo- ries.		5,683	7,456 5,589 6,227	7,588 5,667 6,587	7,543	7,414 5,915 7,134	7,490 4,533 5,841	6, 180 6, 174 6, 777	7,751 5,576 6,457	7,129 5,322 6,582	6,5,298	7,217 5,616 6,715 7,469
	Air-dry-ing loss.		3.1	3.0	4.7	4.7	5.2	80	3.3	5.2	5.9	5.0	4.3
	Oxy- gen.		0 0			27.03	16.73		19.12	14.08 26.47 16.61	18.34 29.05 14.89	16.51	27.36 15.33 17.06
	Nitro-gen.		0 1 0 1 0 1 0 1 0 1			1.05	1.32	1 0 0 1 0 0 1 0 0 1 0 0 1 0 0	1.26	1.58	1.59	1.51	1.13
Ultimate.	Car- bon.					60.08	75.95		62.03	77.87 58.06 67.23	74.23 55.11 68.15	75.56	56.74 67.84 75.46
7	Hy- dro- gen.		1 0 1 0 0 0 0 0			5.89	5.26		5.34	5,45 4,50	4.97 6.06 4.86	5.39	5.38 5.38
	Sul-		1.83	98.5	¥.4.8.	52.58	47.	30.00	4.2.8.	1.02	93.75	20.28	65.55
	Ash.		13.93	16.09	10.90	5.37	3.96	5.48	11.44	8.14 9.43	7.93	10.74	8. 45 10. 10
mate.	Fixed carbon.		43.46	42.10 46.90	50.25 50.25	57.54 46.06 54.54	58.24 46.27 55.53	24.58 24.16 33.16 33.16	57.48 47.05 51.64	59.06 47.33 54.80	60.51 41.73 51.60	57.22	54.39 54.28 60.38
Proximate	Vola- tile mat- ter.	88498449848484444488488484848484848											
	Mois- ture.		9.85	10.24	13.97	15.54	16.67	22.40	8.90	13.64	19.14	17.18	16.37
	Con- di- tion.		-101	20-01	2-61	m=01	201	m – 01	201	m-0	m <del></del> 010	m-010	2000
Sample.	Kind.		æ	В	я	Ħ	В	В	В	В	В	В	g
52	Lab- ora- tory No.		5524	5538	5525	5537	5536	5552	5551	5526	5542	5541	5540
	Locality, bed, etc.	COLORADO—Continued.  DELTA COUNTY—continued.	Cedaredge, 2 miles northeast of; SW. 4NE. 4 sec. 15, T. 13, R. 94 W., McGruder mine, 250 feet from	44 miles northeast of; NE. 4 SE. 4 SE. 12, T. 13 S., R. 94 W., Ward mine, 200 feet in, 55-foot cut.	84 miles east of, 8 miles north of Hotchkiss, SW. 4 NW. 4 sec. 23, T. 13 S., R. 93 W., Bennett	mine, 50 feet from mouth, 54-foot cut. 9 miles east of: 4 miles north of Hotchkiss, 8E. ‡ NW. ‡ sec. 26, T. 13 S., R. 93 W., Newman	Hotchkiss, 6 miles north of; 52. 4 SW. 4 sec. 30, T. 13 S., R. 92 W., Burdick mine, 800 feet in, 74	nch cut, wet sample.  8 miles northeast of; SE. ‡ NE. ‡ sec. 21, T. 13 S., R. 92 W., Stucker mine, 50 feet in, upper	Paonia, 3 miles of-toot cut, weathered.  Paonia, 3 miles of-toot cut, weathered.  T. 13 S., R. 92 W., Conine mine, 300 feet in,	upper bench, 7½-toot cut. Same (lower bench, 6½-foot cut)	Rollins, NW. 4 NW. 4 sec. 35, T. 13 S., R. 96 W., Rollins mine, 285 feet in, lower bench, 11-foot cut.	1 milesouthwest of; SE. $\frac{1}{2}$ SE. $\frac{1}{2}$ Sec. 34, T. 13 S., R. 96 W., Kuhnley mine, 2,000 feet in, $7\frac{1}{2}$ -foot cut.	3 miles northeast of; SW. ‡ NE. 5, sec. 19, T. 13 S., R. 95 W., Fairview mine, 800 feet in, 77-inch cut.

			ANA.	DIBUS	OF.	UOALS	174	1111		VIII	D D.	TVTI	UD.		97
904	406	407	407	408	408	80#	604	60+	60F	410	410	410	=======================================	411	415
341	341	341	341	341	381	381	381	381	381	381	381	381	381	381	381
10,829 12,616 13,756	10, 404	13, 678 11, 207 12, 935	13,599 10,658 12,332	13, 530 10, 940 11, 705 12, 902	6,055	8,726 11,736 11,736 12,686	8,503	8,030 10,438	8,643 10,791	8,912	8,523 8,523 10,899	9,306	12,628	8,305 11,151	8,743 10,948 12,015
6,016 7,542	5,780	7, 399 6, 226 7, 186	7,555 5,921 6,851	6,520 6,503 7,168	3,364 5,128	6,505 4,848 6,520 7,048	6,071	6,4,6 190 190 190 190	9,800	6,261	6,035	6,170	7,010	7,893 4,614 6,195	6, 626 6, 082 6, 082 6, 675
4.9	5.5	4.6	5.4	2.1	26.4	16.9	17.4	14.5	14.6	15.6	15.4	14.5	18.0	15.3	11.4
24.98 14.42 15.52	24.51	25.92 16.20	17.03		42.91 18.80	23.84 35.29 16.82 18.17		35.56	FC .77	35.09	22. 42	32.25			33. 92 20. 06 22. 01
1.22	1.11	1.30	1.58		1.01	1.28		83.	96	69.22	£6	1.06	1.16		.58 .73 .80
61.15 71.24 76.66		71.83				51. 69 69. 51 75. 14		47. 69		52. 25		53.63	72.72		51. 64 64. 66 70. 96
5.05						5. 46. 5. 05. 5. 05.		4.17		6.05		5.79			5.74 4.38 4.81
88.08.	97.5	. 55.	\$8.8.9.9	1.11	.14	24.52.	.60	3222	46.37	26.64.	8625	55.55	28.28	888	1.29
6.07	8.67	4.88	7.68	9.28	13.89	5.57	5.83	10.13	7.48	5.53	6.67	7.02	6.54	4.84	7.09
48.48 56.48 60.78				50.95 50.95 54.51 60.09		38. 60 51. 91 56. 11									54. 68 37. 64 47. 13 51. 72
31.29 36.45 39.22				33.85 36.21 39.91		47. 27 30. 19 40. 60 43. 89									45. 32 35. 13 48. 28
14.16	15.26	13.36	13.57	6.53	34.40	25.64	22.19	23.07	19.90	20.92	21.80	19. 23	22.12	25.52	20.14
-0.00	-00	2-01	n-01	2-10100	-181	m-01m	-000	21010	2-010	20 H CZ	2-01	2000	n → 61	20 m ca	m → cv m
В	щ	В	В	щ	В	щ	æ	B	щ	В	д	В	В	B	A
5522	5539	5521	5523	5534	7128	6546	6439	7129	6441	6440	6442	6438	6437	6443	6545
s miles northeast of: 5 miles northwest of Cedaredge, SE. ‡ NW. ‡, sec. 16, T. 13 S., R. 95 W.,	Same (lower bench, 5-foot cut)	7 miles northeast of; SW, ‡ SE, ‡ sec. 11, T. 13 S., R. 95 W., Watson mine, 200 feet in, upper bench,	84 miles northeast of, NW. 4 NE. 4 sec. 13, T. 13 S., R. 95 W., States mine, 110 feet in, 77 inches of	Wells Gulch, sec. 18, T. 4 S., R., 3 E., 160 feet from mouth of mine, 13-foot cut, weathered.  EL PASO COUNTY.	Calhan, 6 miles northeast of; SE. ‡ NW. ‡, sec. 27, T. 11 S., R. 61 W., Purdon mine, 21‡-inch cut.	Colorado Springs, 3½ miles northeast of, see, 4, T. 14 S., R. 66 W., Keystone mine, A bed, 3½-footeut, 50 feet south of entry, 800 feet from foot of	4 miles north of, sec. 13, T. 13 S., R. 67 W., Neer mine, mine, mine entry, 130 feet south of shaft, A	4 miles north of; 82.4, NE. 1, sec. 24, T. 13 S., R. 67 W., prospect opening, C bed, 23-foot cut.	F. 13 S. R. S-foot cut (8	Curtis, sec. 29, T. 13 S., R. 66 W., Curtis mine, A bed, 124-foot bench (only 6 feet 10 inches sampled),	Sec. 29, T. 13 S., F. 66 W., Danville mine, A bed, 6-foot 5-inch cut, from main slope beyond	Franceville, 2 miles south of; sec. 30, T. 14 S., R. 64 W., Cell or New Franceville mine, A. bed, 34-foot	24 miles southeast of; see. 29, T. 14 S., R. 64 W., Davies mine, 425 feet northeast of mouth, A	Pikeview, sec. 14.1.13 S., R. 66 W., Carlton mine, 83-foot, bed, 63-foot cut, face of room 19,	3 miles northwest of; SW. 4 sec. 11, T. 13 S., R. 67 W., Monument Valley mine (south wall of slope 20 feef from mouth), B 3-foot bed 31-inch cut, weathered.

Table of chemical analyses—Continued.

Reference.	Page of this bulletin.		412	412	412		412	413	413	414	414	414	414
Refer	Bul- letin No.		381	381	381	:	381	381	381	381	381	381	381
Calorific value.	British thermal units.		11,286	13, 676 11, 088 12, 647	13, 644 10, 843 12, 755 13, 567		11, 425	13, 676 9, 626 12, 530	10,881	11,443	10, 730	13, 586 9, 293 10, 219	13,601 11,345 13,037 13,385
Calorifi	Calo- ries.		6,270	7,598 6,160 7,026	7,580 6,024 7,086		6,347	7,598 5,348 6,961	6,045	7, 591 7, 054 7, 054	5, 961 6, 709	7,548 5,163 5,677	7,556 6,303 7,243 7,436
	Air-dry-ing loss.		4.5	6.1	8.1	4.8	4.8	17.2	6.2	3.3	2.9	1.9	3.0
	Oxy-				15.02 27.19 16.31								16.84 25.73 16.30
.:	Nitro-gen.		0.96	1.16	1.0.1		1.04	1.25	1.03	1.01	1.02	1.29	1.36
Ultimate.	Car-				25.25 26.75 27.45								74.80 74.80
2	Hy- dro- gen.				4. v. 4. 4 8. 2. 2. 2. 3			6.15 6.15 6.05					2.3.4.4 8.5.4.8 8.5.4.8
	Sul-		0.92	3.03	£. 4. 4. 5.	1.12	1.44	1.12	.63	67. 43. 68. 68.	.57	48.65	27:7:38
	Ash.		6.29	6.41	5.08	9.24	5.39	6.28	7.38	6.21	9.88	22. 61 24 86	
nate.	Fixed carbon.		45.75	55.45	54.79	44.02	55. 64 49. 91 56. 13	59. 75 40. 20 52. 34	57.00 46.46 53.39	58. 34 48. 62 53. 96	57. 95 44. 15 49. 69	36.61 40.98	53.58 61.15 72
Proximate	Vola- tile mat- ter.		36.77	36.73	4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	35.10	33.62 37.81	30.25	33. 18 38. 18 13. 13	41. 66 35. 28 39. 15	34.82 39.19	31.72	36.25 36.25 36.25
	Mois-		11.19	12.33	14.99	11.64	11.08	23. 18	12.98	9.89	11.15	9.06	12.98
1	Con- tion.		100	n ⊶ c	10-01	o E	m → 01	es – e3 :	10 m cs	m → 01	m=0	m <b>⊣</b> c	100-010
Sample.	Kind.		В	B	Ħ	Ö	m	m	a	m	A	m	м
20	Lab- ora- tory No.	B 188	6253	6252	6249	6248	6251	6250	6257	6254	6379	6378	6377
	Locality, bed, etc.	COLORADO—Continued.	Canon City, Royal Gorge No. 2 mine, level 6 (south	sane (Middle, 4-foot bed)	Same, crosscut from level 5, Upper bed, 4½-foot.	Same (car sample)	2 miles south of; sec. 5, T. 19 S., R. 70 W., Nonac (No. 5) mine. 2,600 feet east of entrance, work-	4 miles south of; see, 17, T. 19 S., R. 70 W., Diamond mine, level 2, 404-inch cut.	3 miles southeast of; sec. 16, T. 19 S., R. 70 W., Littell mine. 100 feet south of foot of shaft.	chandler, sec. 22, T. 19 S., R. 70 W., Chandler mine, Chandler bed, room 1, Cuekoo entry, 58-inch	Radiant, 3 miles south of; sec. 25, T. 20 S., R. 70 W., Ralliant mine. 701-inch bed (200 feet south-	t bed).	Same (sample of bright shiny layers abundant in bony coal, 63-foot bed).

416	416			416	417	417	417	417	417	417	417	417	417	417
381	381			316 371	316	316	316	316	1		316	316	316	316
11, 880 12, 564 14, 409 10, 463 11, 657 13, 864		11,704	13, 98S		10, 467 11, 756 14, 024	14,086			11,104	13, 889	14,224			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6,600 6,980 8,005 5,813 6,476 7,702		6,502	7,771		5,815 6,531 7,791	078',			6,169	7,448 6,838 7,716	206',		* * * *	
6.5	4, 4	60		3.0	4.5	3.9	4.7	9.1	8.9	9.6	5.6	5.9	4.3	7.2
16. 52 12. 36 14. 18 20. 77 13. 00 15. 47		19.04	13.09		19.83	13.60								
1.09 1.15 1.32 1.05 1.17		1.18	1.41		1.39	T. 0.								
64.05 67.73 77.67 58.09 64.72 76.97		65.99	78.86		58. 42 65. 61 78. 27									
5. 20 5. 20 5. 20 5. 26 5. 26 5. 46		5.63	5.52		5.63 4.95 5.91	0.80								
72 78 54 60 17	1.05	28.82.5	1.13	25.55	64.55	55	344	1.8.4.	5.4.78	853	888	28.28	588	1.13
		6.93	10.1	8.29	14.40	7.19	11.95	4.48	4.97	2.35	14.64	11.68	4.94	8.03
44.43 46.98 42.74 47.63 56.65	52.41 57.51	51.97 55.84 47.96	57.32	49.52	59.55 47.68 56.87	48.36	58.95 45.31 51.04	58.98 46.28 56.87	60.19 48.60 55.35	58.67 51.37 57.96	59.35 43.47 48.34	57.74 44.50 49.85	57.35 48.46 55.13	58. 41 46. 46 53. 47 58. 18
38. 40. 22 46. 22 36. 45 36. 45 36. 45	35, 18 38, 73 27, 49	35.71 35.71 85.71	42.68	33.64	43.25 43.15 15.15	33.68	31.51 35.50	41.02 30.61 37.62	34.23 38.99	39.69 39.69	31.82	33.08	42.65 34.50 39.25	41.59 33.41 38.44 41.82
	9.16	9.11		9.32	10.96	10.77	11.23	18.63	12.20	11.38	10.07	10.73	12.10	13.10
-010-010	-0369-	- C1 C2 C	3 00	03	es – 61 es .	4-03	eo – 01	m – n	ಣೆಗಳ	ಣ–ಣ	m 01	m — 01	eo 01	m = 01 m
<b>m m</b>	<b>m m</b>	9 8		A	a	a	п	a	8	а	В	a	n	A
6409	10127	10142		3728	3729	3732	3734	3730	*9143	*9144	4040	4038	4037	4030
Rockvale, see, 25, T. 19 S., R. 70 W, Rockvale mine, Rockvale bed 1st dip, 4th north entry, 34-foot Near, see, 6, T. 20 S., R. 69 W., Bluff Springs (Righting Rag) mine, Rockvale bed 34-foot bed, 36-foot cut.	oo-in	As-inch cut). Same (composite of Nos. 10127 and 10128)	GARFIELD COUNTY.	Carbonera, 18 miles northwest of Mack, sec. 11, T. 7 S., R. 104 W., prospect on east side of	Sec. 13, T. 7 S., R. 104 W., Unta mine (entire bed), end of back entry, 834-inch cut.	Same (between upper and lower coal, near entrance of mine, 83-inch cut).	Same (64-foot cut, room 3)	10 miles east of; sec. 16, T. 7 S., R. 102 W., prospect south of Turner's ranch, weathered coal bed	Cardiff, 4 miles southwest of; NE. <sup>‡</sup> SE. <sup>‡</sup> sec. 8, T. 7 S., R. & W. Black Diamond mine, Black Dia-	mond bed (3,500 feet from opening). Same (800 feet from opening)	Same (upper 91-foot bench)	Same (entire bed) composite	Same (lower bench)	Same (49 inches of 5-foot bench)

Table of chemical analyses—Continued.

	52	Sample.			Proximate.	nate.			D	Ultimate.				Calorifi	Calorific value.	Reference.	nce.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy- gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
COLORADO—Continued. GARFIELD COUNTY—continued. Cardiff, Black Diamond mine—Continued. Same (61-inch cut)	4050	Я	-01	14.11	32.71	43.99	9.19	0.91		57.97 67.49	1.46	24.97	7.6	5,753 6,698	10,355 12,056	316	417
Marion on C. & M. coalspur, SE. \$ SW. \$ sec. 10, T. 8S., R. 89 W., Marion mine (Allen bed, about 200	9195	В	o 4 → 6/	3.81	36.30 37.74	57. 48	4.60	.40	5.50	75.58	1.93	16.21 16.39 14.08	1.6	7,564	13,502 13,615 13,410		418
feet from mouth of entry, 55-inch cut). Same, Allen bed (900 feet in mine, entry 1, 60-inch cut).	9196	В	∞−01	4.44	39.64 36.65 38.35	60.36 54.61 57.15	4.30	4.9.8		80.55 73.85 77.28	1.64	11.67 14.17 10.69	2.6	8,134 7,505 7,854	14, 641 13, 509 14, 137		418
Same, Anderson 4-foot bed, 1,200 feet in mine, north entry, 25 feet from fault, 4-foot cut.	9197	д	ω ⊷ <u>i</u> αι	6.34	40.16 34.78 37.13	59.84 55.96	2.92	844		80.92 74.31 79.34	1.55	15.24	4.3	8, 224 7, 440 7, 944	14,803 13,392 14,299		418
1 mile west of: SW. 4 SE. 4 sec. 9, T. 8 S., R. 89 W., Keystone mine, Keystone bed (prospect	*9202	В	2010	24.10	38.33 37.37	61.67 36.23 47.73	11.31	3.2.8		81.89	1.70	10.59	13.4	8,200 4,188 5,518	14,760 7,538 9,932		419
Newcastle, 1 mile southwest of; NE. 4 sec. 4, T. 6 S., R. 91 W., Keystone mine, Keystone No. 1 bed (600 feet down slope, lowest level, 2-foot	3932	Д	m → 01 m	4.16	43.91 35.55 37.09 39.29	56.09 54.94 57.33 60.71	5.35	8348	5.27	73. 24 76. 42 80. 94	1.44	11.04	1.0	6,484 7,290 7,606 8,056	13,621 13,122 13,691 14,501	316	420
Ded, 20-inch cut). Same (600 feet down slope, lowest level, 2-foot bed, 20-inch cut).	3936	Я	4-100	3.68	36. 66 38. 06 40. 99	52. 77 54. 79 59. 01	6.89	.44 .46 .49	5.34 5.12 5.27	81.31 71.99 74.74 80.50	1.1.1. 1.4.39 5.4.53	11.75 11.32 12.19	6	8,083 7,178 7,452 8,026		316	420
Same (1,200 feet from opening, Keystone No. 2 bed, 26-inch cut).	8807	д	4-10	5.3	33.5	52.0	9.22	.42	5.29 5.14 4.80	80.90 68.28 72.10	1.25	15. 25 15. 69 11. 60	2.8	8,054 6,860 7,245			420
mile southeast of; NW. 3 sec. 2, T. 6S., R. 91 W., Coryell mine, 1,200 feet from shaft, Allen 14-foot bed.	3938	А	m → c1 co	3.51	39.0 38.38 39.78 41.92	61.0 53.17 55.10 58.08	4.94		5.32 5.10 5.14	79.88 72.86 75.51 79.58	1.46	12.52 12.52 12.53 13.53 13.53	∞ .	8, 030 7, 370 8, 050		316	420
Same (lower 54-inch bench)	3933	д	4-10300	3.51	38. 5 39. 9 41. 92	53.34	4.65	52 54 57	5.18	80.06	1.91	12.85	.7	8,085		316	420

420	420	420	420		421	421	421	421	421	421	421	421	121	124	423
316	316	316			:	316	316	316		316	316		:		
		13, 234 13, 793 14, 557	14, 618 12, 610 13, 190	12, 380 12, 060 12, 670	13,840 7,970 10,650	11,280 12,425 13,264 14,161	14, 292 12, 341 13, 300 14, 107	14, 186 13, 703 14, 081	14, 134 11, 730 12, 590	14.010	11, 891 12, 584 14, 047	11, 690	13, 790 11, 740 12, 840	12, 390 13, 240	13, 940 11, 020 12, 280 13, 500
		7,352 7,663 8,087	7,005	6,79	7,690 4,430 5,915	6,270 6,903 7,369 7,867	7,940 6,856 7,389 7,837	7,881	7,852 6,515 7,000	7,785	6,606	7,822 6,495 7,275	7,775 6,520 7,130	7,805 6,880 7,360	7,745 6,120 6,825 7,500
1.2	1.1	1.2	1.9	2.0	17.4	2.1	3.1	3.1	2.9	2.2	1.7	0.0	4.1	2.9	4.2
		11.53				17.17 12,32 13.16	13.26 14.06	15.22	15.29		17.58 13.42 14.99	15.04			
		1.73	1.52	77.7		1.57	1.58	11.1.	1.84		1.98	T. 0.1			
		72.98 76.07 80.28				68.72 73.36 78.32	23.22 73.51 73.51	75.59 77.41 77.41	77.81		65. 66 69. 49 77. 56				
		5.24				5.48	5.07	. 4. 7. 4. 7. 4. 5. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	p. 00		5.27				
.53	6.63.53.53	55:55	4.64	54.4.	584	1.12	. 69 . 74 . 79	.51	33.55	9.51.5	23.53	45	388	55.55	8888
3.85	5.74	5.03	7.89 8.25	8.8.	5.7	5.94	5.31	2.48	9.5	8.93	9.84	8.9	7.9	5.0	8.1 9.1
		52. 71 54. 94 57. 98	52.7	56.5	53.3	50.84 54.27 57.94	51.39 55.39 58.75	53.90 58.23 59.84	24.0	61.0 47.89 51.24	48.76 51.61 57.60	52.0	62.0 51.0 55.9	55.0	64.5 64.5
		38.20 39.82 42.02				36.9 39.39 42.06	36.09 38.89 41.25	36. 18 39. 09 40. 16	35.0	30.63	35.89 37.98 42.40	31.5	35.50	33.5 37.0 0.7.0	35.0 35.0 35.5
4.00	: :	4.06	4.4	4.8	25.1	6.32	7.21	7.44	6.8	6.55	5.51	10.7	8.6	6.5	10.3
	2-010		* 63 6	2-010	2-010		4-010	4-000	4-0			*-01	2000	m ~ 01	m = 01 m
<b>A</b>	A	Д	Д	0	g	М	М	д	Д	д	g	Д	М	A	æ
3937	3935	3939	8800	8810	880.4	3943	3946	3961	8808	3959	3960	8811	8812	8805	8809
Same (best coal of 5-foot bench)	Same (upper 9 feet)	Same (entire bed)	Same (10-foot cut from face)	Same (collected from mine cars)	33 milessoutheast of; NW. 4 sec. 8, T. 6 S., R. 90 W., Coal Ridge mine (not working) 50 feet in, C	Rifle Creek, sec. 12. T. 5 S., R. 93 W., McLearn mine, north of Grand River, 1,000 feet from shaft, lowest thick bed (73-foot cut).	Same (best coal, 5}-foot cut)	South Cañon, NW. 4 sec. 14, T. 6 S., R. 90 W., South Cañon mine (2,000 feet in, D bed, 4g-foot cut).	Same (2,400 feet in, entry 2, Wheeler 14-foot bed, 9-foot cut).	Same (2.650 feet from mine entrance Wheeler bed, 123-foot cut).	Same (2.250 feet from mine entrance, Wheeler bed, 15§-foot cut).	Same (250 feet in mine, Allen bed, 54-foot cut).	Same (2,200 feet in mine, entry 3, D bed, 42-foot cut).	Same (400 feet in mine, entry 1, E bed, 3-foot cut).	3 miles south of station, sec. 23, T. 6 S., R. 90 W., mine of Martin Ohkraut (150 feet in, Keystone No. 2 bed, 3½-foot cut).

Table of chemical analyses—Continued.

nce.	Page of this bulle tin.		423	423	423	423	423	423	423	423	424	424	424
Reference.	Bul- letin No.		316	316	316 415	316	316	316					
Calorific value.	British thermal units.			12, 424 13, 122	14, 555			13,138 14,051 14,499	11,844 112,973	10,156	13,552 12,096 13,104	12,096	14,400 12,262 13,174
Calorif	Calo- ries.			6,902	8,086			7,299 7,806 8,055	6,580	5,642 6,193	7,529 6,720 7,280	6,720	8,000 6,812 7,319
	Air-dry-ing loss.		2.8	3.0	ري دي	2.6	2.0	33	3.9	4.3	4.8	5.0	က က
	Oxy-			15.85	13.05			17.31	12.00		18.02	10.16	18. 07 12. 78
	Nitro- gen.			1.58	1.86	* * * * * * * * * * * * * * * * * * *		1.79	00 :		1.58	T) 'T	1.44
Ultimate.	Car- bon.			67. 76	79.60			71.51	(3, (4		67.16	10.00	69.04
D	Hy- dro- gen.			5. 26	5. 49	· · · ·		5.34	5. 40		5.50	5. 40	5.47
	Sul-		0.69	£588	.67	.82	868	8.8.8. 8.8.8.	298	2882	2,77	. 67	1.14
	Ash.		11.18	8. 79 9. 28	4.79	5.17	.3. 83 4. 04	2.90	5.30	16. 17	7.08	8.60	
nate.	Fixed car-		58. 64 62. 05	70.37 49.60 52.39	52. 73 56. 65			47.50 53.38 57.09 58.91	50.74	41.83 45.91	55. 82 48. 75 52. 81	57. 20 49. 19	58. 56 51. 96 55. 83
Proximate.	Vola- tile mat- ter.		24. 68 26. 12	29. 23 38. 29 38. 33 38. 33	35. 55 38. 20	36.27 38.29 38.46	40.69 47.77 50.38	52.50 37.23 39.81 41.09	35.72	33. 11 36. 34	44, 18 36, 48 39, 52	34.81	38. 89 38. 89
	Mois-		5.50	5.32	6.93	5.65	5.19	6. 49	8.70	8.89	7.69	7.40	6.93
	Con- di- tion.		12	<b>∞</b> ⊢01	24-10	≈ c3	0 H 0	<b>∞</b> ⊢0100	4-0	200	m=0	2000	10-01
Sample.	Kind.		В	д	м	М	М	В	В	Ф	Д	В	д
bă.	Lab- ora- tory No.		4032	4034	4046	4045	4033	4048	9200	9201	9192	9193	1616
	Locality, bed, etc.	COLORADO—Continued. GARRIELD COUNTY—continued.	unlight, 15 miles south of Glenwood Springs, sec. 33, T. 7 S. R. 89 W Sunlight mine (3,000 feet	in, A bed, 74-foot cut). Same (3,500 feet in, A bed, 10g-foot cut)	Same (1,100 feet in, B bed, 6-foot cut, weathered).	Same (1,100 feet in, C bed, 6-foot cut)	Same (2,500 feet in, D 9-foot bed, 74-foot cut)	Same (3,300 feet in, D 99½-inch bed, 77½-inch cut).	1 mile north of; NW. 4 NE. 4 sec. 28, T. 7 S., R. 89 W., Mascot mine (upper A bed, 66-inch cut).	Same (lower A bed, 36-inch cut)	NE. § SW. § sec. 34, T. 7 S., R. 89 W., Midland mine (1,100 feet in, B bed, 6-foot cut).	Same (A bed, 6-foot cut)	Same (south 1,100 feet, west about 20 feet, C bed, 6-foot cut).

424	425	425	425	425	627	425	425	425	436	427	427	427	427	428	\$27
	415	415	415	5			:								341
13,909 13,189 13,919	14,382		13,169	18, 191	11,464	13,943	14, 956 14, 011 14, 364	13, 260 13, 780	15,020 13,189 13,725	14, 490	14,031	13,250	12, 195	12, 203 12, 062 13, 428	13, 966 13, 468 14, 155 15, 160
7,727	7,990		7,316	*00 t)	6,369	7,746	7,784	8,278 7,365 7,660	8,345 7,327 7,625	8,050 9,050 9,050	8, 203 8, 057	7,361	7, 476	7,460	7, 759 7, 482 8, 422
2.1	3.0	2.9	2.0	4.9	5.7	1.4	1.0	2.2	2.1	1.7	63	3.1	7.6	6.0	3.0
13. 49			18.06 13.47 13.73		21. 74	71.8° 28.8° 28.8°	20.00 20.00	8.93 10.51 7.40	8.08 13.46 10.38	1.259	1.27	1.34	19.30		7.32 3.15 3.38
1.64			1.85		1. 44	1.52	588	844	1.53	3223	255	1.07	1.32	F0.T	2.03
78.32			72. 18 76. 87 78. 46						84. 52 74. 09 77. 10				68.74	80.10	79. 66 83. 73 89. 67 64.
5.35			5.24						5. 29				5. 45	D. 14	3.61 3.61 3.87 8618. p.
.86	45.28	388	52.55 52.55	62 23	1.93		3.4.4	4.88.4. 04.	4.6.5	4.8.8.	26.	34.8	644	\$4.4.	8282 S
3.04	10.03	3, 54	1.90	3.39	6.47	7.24	3.51	7.93	5.07	5.83	5.38	3. 65	6.29	3.47	6. 63 6. 63 16 6. 63 Soo analysis
			57. 63 53. 53 57. 01 58. 18	52. 67 55. 97 57. 93		55. 43 56. 16 57. 89		8.5.8 8.8 8.8 8.8	69. 5 54. 94 57. 17	988.88 90.88 15.88	90.67	59.33 59.33	52. 13 57. 53	55.65 56.69 57.69	2007
			41.82 41.82	38.24 40.64 42.07	36.64	34.65	34.48	25.55 25.50 25.50 25.50	30.5 36.08 37.55	200 200 200 200 200 200 200 200 200 200	382	36.08	33.69	33.55	34.34   65 6.96   81 7.32   86 7.84   92 t. Carbon.
5.25	6.06	6.36	6.10	5.90	11.32	2.98	2.46	رن د	3.91	2.7	3.25	5.52	9.39	10.18	3 4.86 3 mine at Mt.
8-8	e − 01	<b>9</b> -010	<b>n</b> ⊣0100 -		-01	m – 01	n → 01	0-0	m <b>−</b> c3 c	m=0	n – 01	n-01	n – a	2-01	due mt
Д	д	В	A	я	В	м	æ	н	a	д	В	B	В	B	8246 B
9194	4035	4031	4036	4039	10092	7983	7982	8655	7981	7979	7978	7980	9139	7977	8246 Same
Same (D bed, 6-foot cut)	1 mile north of; Pocahontas mine (A bed, 16-foot, upper beneh, 64-foot cut).	Same (2,200 feet in, C bed, 73-foot cut)	Same (D bed, 94-foot cut)	Same (D bed, upper bench, 74-foot cut)	Baldwin, Mount Carbon minea, No. 2 bed (north entry 6, 2,500 feet from opening, 77-inch cut).	Crested Butto, sec. 3, T. 14 S., R. 86 W., Crested Butte mine, No. 3, 11-foct bed (4 mile south of mine	Same (4 mile south of mine mouth, 59-inch cut).	Same (near surface, weathered)	mile southwest of, NW. 4 NW. 3 sec. 11, T. 14 S., R. W., Porter mine, No. 3 bed, between	South entires 2 and 3, to 5-not cit.  1 mile north of, sec. 28, T. 13 S., R. 86 W., Silver Brook mine (highest bed worked, cross entry	Same (No. 1 bed, 400 feet north of shaft, 27-inch cut).	1 mile southeast of; NW. 3 NW. 3 sec. 11, T. 14 S., R. 86 W., Bulkley mine, No. 3 bed, 50-inch cut.	Same (100 feet south of opening, 77-inch cut)	2 miles southwest of; sec. 14, T. 14 S., R. 86 W., No. 1 bed, 64-foot cut.	5 miles southeast of; sec. 30, T. 14 S., R. 86 W., Robinson anthracite mine, 300 feet in, No. 2, 71-inch bed.

Table of chemical analyses-Continued.

ence.	Page of this bulletin.		428	420	429	420	430	430	430	431	431	431	432
Reference	Bul- letin No.			341	341	341	341	341		341	341	341	341
Calorific value.	British thermal units.		13,500	15,080 11,981 13,316	14, 044 11, 270 12, 920	13, 990	13, 052 11, 910 13, 240	13, 620	11, 398	14,098 13,217 13,986	14, 456 13, 244 14, 083	14,575 7,870 10,017	10,652 8,768 10,856 11,632
Calorif	Calo- ries.		7,498	8, 375 6, 656 7, 398	7,802 6,260 7,180	7,770 5,478 6,739	7,251 6,615 7,355	7,815	6,332	7,832	8,031 7,358 7,824	8,097 4,372 5,565	5,918 4,871 6,031 6,462
	Air-dry-ing loss.		1.1	7	6.5	9.6	4.3	5.3	5.9	2.0	2.7	9.8	10.1
	Oxy- gen.		4.48	20.02 20.04 12.35	13.04 22.66 12.96	14.04		20.70	19.50	12. 42 16. 13 11. 91	12.32 15.24 10.57	10.93	
	Nitro-gen.		1.48	1.22	1.48	1.81		1.32	1.27	1.22	1.33	1.50	
Ultimate.	Car-		83. 20 85. 79	92, 95 67, 62 75, 16	79.26	77. 21		68.30 76.23	72.43	80.04 73.22 74.77	80.07 74.08 78.77	81.52	
P	Hy- dro- gen.		2.67	2.5. 5.59 8.98	5.5.5	5.51		5.06	5.57	5. 43 45. 65		5.53	
	Sul-		0.69	78.	1.122	1.43	55.55		34.4	4.88	.65	384	38:14:
	Ash.		7.5	4.66	6.66	5.74	.0°.0	3.60	8.50	3.25	3.37	5.95	5.38
nate.	Fixed carbon.	,	86.5 89.3	96. 5 53. 17 59. 10	62.33 46.53 53.9	58.0 45.65 56.16	56.6	88.88 8.08 8.00 8.00	45.91 51.39	56.79 55.79 59.03	61.01 66.95 71.19	73.68 44.75 56.97	60.57 44.35 54.91 58.83
Proximate.	Vola- tile mat- ter.		9:0	3.5 32.14 35.72	37.67 34.0 38.5	8.8.9.9 8.8.9 8.8.9	33.5	32.5	34.94	43.21 35.65 37.72	38.98 23.92 25.44	26.32 29.13 37.08	39. 43 31. 04 38. 43 41. 17
	Mois- ture.		3.0	10.03	12.8	18.71	10.1	10.4	10.65	5.49	5.96	21.44	19. 23
	Con- di- tion.		-2	m=0	2012	0 H 01	2010	200	2-01	m − 01	ω <b>⊣</b> α	m = 01	m-01m
Sample.	Kind.		М	я	п	В	m	м	д	æ	В	В	А
vã.	Lab- ora- tory No.		8120	8618	8619	8620	8616	8617	10001	5406	5405	5807	5529
	Locality, bed, etc.	COLORADO—Continued.	Floresta, sec. 16, T. 14 S., R. 87 W., Ruby anthracite mine, entry 5, 53-inch cut.	Mount Carbon, sec. 7, T. 15 S., R. 86 W., Alpine mine, room 20, seventh main entry, No. 2 bed, 6	feet 104 inches.  Inchest of sec. 18, T. 15 S., R. 86 W., La Plant mine, 400 feet west of bottom of shaft,	2 miles east of, sec. 31, T. 15 S., R. 86 W., 50 feet from mouth of opening, 8-foot bed.	About 3 miles east of; sec. 15, T. 15 S., R. 86 W., descrted mine, 275 feet N. 50° W. of mouth,	3 miles northeast of: sec. 4, T. 15 S., R. 86 W., Kubler mine (end of main entry, No. 2 bed,	Same (north entry 2, 950 feet from opening)	Somerset, 1 mile east of; sec. 11, T. 13 S., R. 90 W., Sylvester prospect in north bank of Gunnison	River, 70 feet in, 70-inch cut.  2 miles east of, sec. 11, T. 13 S., R. 90 W., Hawks Nest prospect, 100 feet in, upper 5 feet of 74-	4 miles south of; 9 miles east of Paonia, sec. 32, T. 13 S., R. 90 W., Sheecoft (Porter claims)	7 miles south of: 12 miles east of Paonia, sec. 22, T. 14 S., R. 90 W., Simonton (Porter claims) prospect, 25 feet in, 7 feet of 64½-foot bed.

25	433	433	<b>\$</b>	434	434		435	435	435	435	435	486	436	436	989
341	341	341	341	341	341		381	:	:	381	381	381	381	:	:
					13, 930 13, 990 14, 460 15, 270		11,650	11, 990 12, 881 14, 022	11,511	12,704	12,395	12,888 13,433	12, 397 12, 924	14, 744 13, 068 13, 592	14, 744 9, 895 11, 428 14, 695
6,815 7,115	6,837	6,758	7,7,7,	8,9,5,5 017,6 010,	8,484		6,472	6,661 7,156 7,790	6,395	7,357	6,886	7, 160	6,887	8, 191 7, 260 7, 551	8, 191 5, 497 6, 349 8, 161
3, 2	1.7	3.1	60	6.5	2.5		3.4	Ci Ci	2.7	1.9	61	61	2.8	2.6	11.6
	19.06						16.60	16.16							10.27 14.52 3.00 3.85
	1.55	1.04					1.0			1.23	1000	2223	1.09	811.8	
	68.76 75.51	8					65.66			73.44	69.84	71.18	13.25 13.35	83.67 72.66 75.57	81.98 61.55 71.09 91.41
	4.85						4.90			5.03	5.32	5.34	4.84	5.25	22.33
955	72.83	888	1988	e is is	833S		888	81888	95.	1525	25.25	58.8	3255	85.5	25.45.2
15.78	5.25	4.26	4.35	4.34	- 60 - 60 - 60		10.87	8.14	11.62	9.08	11.58	8.08	11.84	7.52	19.25
					20.82 77.6 80.7 85.0			52.13 56.75							60. 12 61. 50 71. 0‡
3.98					14.0 14.0 15.0		35.18	83.38 83.38 83.38 83.38							86.53 83.33 83.33
4.23	8.94	6.08	4.36	9.38	3.3		6.47	6.92	6.86	3.39	3.61	4.06	4.09	3.86	13.42
~ 03 m		9-010	2 C3 C	9-81	o → 01 00		-600	0 11 20 11 20	-00	ab⊶ cs c	; — ç; c	÷ + 03 €	2 01	8-8	m=m
m	m	m	В	æ	a		2	Ла	Va	g	m	В	я	m	я
5528	5344	9142	8800	9140	9141		8099	10189	10190	6540	6541	6250	6532	6531	6535
9 miles southeast of; sec. 3, T. 14 S., R. 89 W., Porter prospect south of Mount Gunnison,	94 miles southeast of, see. 10, T. 14 S., R. 89 W., Mosely mine, 60 feet in, 104-foot bed, 7-foot	14 miles southeast of, sec. 27, T. 14 S., R. 89 W., No. 5 bed, 25 feet from surface, 5-foot cut.	Same (No. 2 bed, surface opening, weathered, 7 foot 1 inch bed, 54-foot cut).	15 miles southeast of, sec. 34, T. 14 S., R. 89 W., surface opening, weathered, 28-inch cut.	About 16 miles southeast of; sec. 9, T. 15 S., R. 89 W., upper Coal Creek canyon, Mosely's prospect, No. 6, 8-foot 8-inch bed, 63-foot cut.	HUERFANG COUNTY.	La Veta, 6 miles northwest of; NW. 4, SW. 4 sec. 10, T. 29 S., R. 69 W. (face of entry 3 south, 88-inch	McGuire, 5 miles from Walsenburg; sec. 23, T. 27 S., R. 67 W., Pinon mine, south entry 4, 1,700 feet from portal, Cameron bed, 6-foot 8-	Same (south entry 1, 1,400 feet from portal 4-foot 9-inch cut).	Pryor, NE. 4 sec. 24, T. 29 S., R. 66 W., Pryor mine (north entry 3, Cameron bed, 474-inch cut).	Same (south entry 2, 150 feet from bottom of slope, Pryormiddle 67½-inch bed, 56-inch cut).	Rouse, Walsen mine (east entry 4, Rouse bed, 15 feet from dike, 63-inch cut).	Same (east entry 8, near base of main slope, 694-inch cut).	Same (cast entry 4, main slope, 1 foot from natural coke, 24 feet from dlke).	Same (east entry 4, close to small dike and natural coke, 51-inch cut).

a Sample taken according to standard method of Bureau of Mines but not by Bureau of Mines or United States Geological Survey.

Table of chemical analyses—Continued.

ralue. Reference.	British Bul- of thermal letin this units. No. tin.	1, 709 368 437	14, 161 368 381 381	0,552 368	14, 051 10, 863 12, 098 13, 000	2,078 381 438 4,269		9,391 381 438	
Calorific value.	Calo-thu		7,867	•	6, 806 6, 035 7, 121 7, 121 7, 121 7, 121 7, 121				6,885 6,406 11 6,885 11 6,120 11 6,778
	Air-dry-ing loss.	==		1.8	7.0	<del>न</del> न		9.5	9.5
	Oxy- gen.			15.90	19.39	15.39 9.94 10.94	90 00	21.36	21.36 22.95 35.90 19.60
ei	Nitro-gen.			0.98	 	1.02	56	1.17	1.17 1.26 1.26 1.86 1.86
Ultimate	Car- bon.			58.30	68.75 68.75 8.75 8.75 8.75	69.15 74.27 81.69	53.15	12.00	65.27 49.26 49.26 71.33
	Hy- dro- gen.			4.52	75.55 75.55 75.55	5.03	5.76	1001	4.4.6.02 4.9.4.9.4.9.4.9.4.9.4.9.4.9.4.9.4.9.4.9
	Sul- phur.	1.21	8.75	8511	1.38 8.65 8.65 8.65 8.65	. 53	76.		1.05 1.16
	Ash.	12.03	11.57	18.86 20.08	11.65	8.46 9.09	5.67		9.70
mate.	Fixed carbon.	46.29	48.39 45.98 48.39	39.04 42.19	52.79 43.84 48.82	53.38 53.38 53.72	40.29	40 40 40 40	53.18 24.97 50.64
Proximate	Vola- tile mat- ter.	36.40	39.35	35.35	24.23 28.33 29.23 29.23	12.72.4 22.23 23.23	35.47 43.56		3.4.4.8 3.8.2.8.3
	Mois-	5. 28	5.60	6.05	10.20	6.90	18.57		33. 52
	Con- di- tion.	н:	N CO CO	ಣ=ಣ	co ← co c				n 01 m
Sample.	Kind.	4	V O	0	Ħ	m	m		д ;
	Lab- ora- tory No.	222D	223D	240p	6551	6547	6372		6593
	Locality, bed, etc.	COLORADO—Continued.  HUERFANO COUNTY—continued.  Shumway, Pinon No. 3 mine, Lower bed (560 feet	Southwest of shart, of then cut). Same (300 feet northwest of shaft, 634-inch cut)	Same (nut coal, 33 tons)	Strong, SW. 4 NW. 4 sec. 9, T. 27 S., R. 67 W., Sunny-side mine, main slope (86-Inch bed, 85-Inch	Walsenburg, 1 mile west of, NE. \( \) NW. \( \) see. 17, T. See. 17, T. \( \) See. 18, 16 W., Robinson mine, Robinson bed (cross entry 8, off north entry 8, 7-foot bed).	JEFFERSON COUNTY. Golden, 5 miles north of; sec. 33, T. 2 S., R. 70 W., St. James (Raiston Creek) mine (2-foot bed).	The of C D A M C cos of a distant solitor of the W	Morrison, Z. Illies north 01, sec. 25, 1, 1, 2, 5, 1, 1, 1, 10, 19, 1, 2, 1, 1, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,

430	439	440	440	441	441	141	442	442	442	443	443		443	443	777
316	316	316	316					316	316	316	285 316		285	316	316
			11,900 12,274 14,843	11,370	12,030	6,910	12,506 12,931 14,661	13,120	14,001	13, 595 14, 108 14, 917 15, 080					
			6,611 6,819 8,246 8,246	6,315	6,335 7,685 855 855	4,840	6,948 7,184 8,145	7,289	0, 200	7,553 8,287 8,287	7,730	7,001	11110		
1.0	1.7	771	6	1.3	2.1	2.1	2.0	2.3	2.7	1.6	1.3	08.	1.2	6.	1.9
			9.11	9.72	13.08 10.08 10.05	5.885 5.885 5.885	11.53	14. 14 9. 76 10. 39	10.40	8.20 8.68 8.68		6.27	a i i		
			1.43					1.545		1.54		1.36	3 : :		
			64.21 66.23 80.09	63.30	64.33	86.55	69.12 71.46	72. 70 76. 97 81. 90	82. 50	75. 40 78. 25 82. 73		69.96	#0 *# o		
			44.0.0 55.84.0	28.00	. 4. 4. 7. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	20.6.4	5.17	5.46	5. 49			4.73	00.00		
25.23	821.5		1.30	1.85	1.0%	3.13	88.68.5	282	99.	1,36	£2.	34.23	55.58	8.4.4.	1.18
7.16	4.86	9.48	16.78	20.17	14.46	47.1	11.41	5. 69 6. 02	5.35	5. 22	6.74	16.12	7.73	7.17	9.14
54.37	61.48	55.97	47. 47 48. 96 59. 21	49.0	55.8	30.88	50.67	52.53 55.62 59.18		53.35 55.36 58.54				59.67 55.89 57.04	
			45.22.05 5.22.05 5.23.05	27.5	27.5	20.05	35.81	36.23 40.82 82.33 40.82	36. 16	37. 79 39. 22 41. 46	36.05 37.06	31.65 32.05	36.15 37.13	35. 64	36. 85 36. 85 36. 05
2.87	2. 70	1.41	3.05	e5 63	5.2	8.	3.28	5.55	5.71	3.64	2.73	1.24	2.63	2.03	3, 33
		3-1-C3 c		*00	2000	2-1010		o ⊶ 0100.	4-101	<b>2</b>		9-01			
<u>m</u>	Д	g	Д	g	m	B	A	Ф	9	Д	A	0	Д	m	<u>n</u>
3994	4174	4113	3551	8433	8431	8433	*9146	3573	3950	3552	2092	537D	2093	3997	3995
Durango, 14 miles southwest of; sec. 36, T. 35 N., R. 12 W., prospect, Upper Cretaceous age, 5-foot	1 mile east of; Gold King Consolidated mine, east entry on south side of main drift, 29-inch cut.	13 miles from; Gold Prince mine, coal dry, 42-inch cut.	3 miles southeast of; abandoned La Plata mine, upper drift, weathered, about 8-foot cut.	7 miles northeast of; sec. 19, T. 35 N., R. 8 W., prospect, A bed, 30-inch cut.	7 miles east of, B bed, 4-foot cut	8 miles east of; SW. 4 SW. 4 sec. 19, T. 35 N., R. 8 W., C bed, prospect (30 feet from mouth,	19 miles east of; SE. 4 NW. 4 sec. 15, T. 35 N., R. 6 W., Palmer mine, B bed, 220 feet down	Hesperus, ½ mile southwest of; Hesperus mine, Hesperus, ½ mile southwest of; Hesperus bed (entry I west of slope, 53-foot cut).	Same (third level west on main slope, 54-foot cut).	Perins, 4 miles northwest of Durango, Perins Peak mine, 1,200 feet in, main entry, 944-inch section.	Porter, 4 miles southwest of Durango, Porter mine, No. 3 bed (4,500 feet in, south side main	entry, 3-100t cut.). Same (run of mine)	Same (2,000 feet in, main heading, 21-foot cut)	Same (1,250 feet north of mine mouth) (313-inch cut).	Porter No. 1 mine, No. 1 bed (28-inch cut)

Table of chemical analyses-Continued.

Reference.	Page of this bulletin.	444	444		445		446	446	440	447	:
	Bul- letin No.	316	316		381		381	381	381	ro	
Calorific value.	British thermal units.				7,468 10,568 12,110		13,554	14,810 13,415 13,711	14,971 13,192 13,644	15,287 12,220 13,061	15,317
Calorif	Calo- ries.				4,149 5,871 6,728		7,530	8.228 7,453 7,617	8, 317 7, 329 7, 580	8, 493 6, 789 7, 256	8,509 7,045 7,355
	dry- ing loss.	1	3.0		24.9		1.1	. 7	2.3	5.8	2.6
	Oxy- gen.				37.66 16.40 18.80		10.10	8.0.8 87.9	8.0.7. 55.59	7.88	9.15
	Nitro-gen.				0.75 1.06 1.21		1.19	1.24	22.23	1.43	1.20
Ultimate.	Car- bon.				42. 88 60. 68 69. 54		76.93	75.11 76.76	3138	84.13	70.69
Þ	Hy- dro- gen.				6. 28 4. 27 4. 89		5.30	4.83	5.30	5.71	5.14
	Sul-	0.72	:2533		3. 43 5. 56		4.4	85.4	18.7.7.	888	522
	Ash.	9.0.0 4.0.4 8.4.0.0	12.59		9.00		6.06	8.24	10.39	13.78	13.18
nate.	Fixed car-	55. 27	50.32 50.32 50.32 50.32		32, 72 46, 30 53, 06		56.38	61.61 54.79 55.99	61.14 53.75 55.59	62.29 47.97	52.22
Proximate.	Vola- tile mat- ter.	32. 92	33.54 36.12 41.79		28. 95 40. 96 46. 94		35.14	35.83 35.83 35.83	33.53 33.53 33.53 33.53	37.71 31.82 34.00	39.87 32.38 33.80
	Mois- ture.	15 61	7.14		29. 33		2. 42	2.15	3.31	6.43	4.22
	Con- di- tion.	H 61	120-10100		ca co		-01	∞-01	m m	n → 0	∞−01¢
Sample.	Kind.	m	Д		m		В	a .	В	В	Ö
ď	Lab- ora- tory No.	3996	3639		6433		6536	6528	6456	796р	8800
	Locality, bed, etc.	COLORADO—Continued.  LA FLATA COUNTY—continued.  Portor—Continued.  Portor No. 2 mine, No. 2 bed (43½-inch cut)	15 miles southwest of: 5 miles northeast of Pendleton, N. Mex., NW. 4 SW. 4 sec. 23, T. 32 N., R. 12 W., 25 feet north of State line, Pruitt mine, Carbonero bed (58-inch cut).	LARIMER COUNTY.	Dixon, 6 miles northeast of, sec. 24, T. 10 N., R. 68 W., Indian Springs mine, 700 feet north and 70 feet east on main entry, 74-inch bed (61-inch cut).	LAS ANIMAS COUNTY.	Aguilar, 2 miles northwest of: NW. 4 sec. 20, T. 30 S., R. 65 W., Las Animas No. 4 mine, Broad-	1 mile southwest of, NW. 4 sec. 34, T. 30 S., R. 65 W., Peerloss-Annex mine, room 1 north en-	dry, Peerless bed, 4-foot eut.  Serwind, NE, 4 NE, 4 sec. 36, T. 31 S. R. 65 W., Ber-wind No. 3 mine, south entry 2, off east entry	14. Berwind bed, 54-inch cut. I mile west of, Toller mine, 180 feet southwest of shaft, 714-inch cut.	Зать

447	447	447	447	447	448	448		449	449		449	449		450	450	450
10	70	-	381	381	368	368	368	368	368	368	30%	368	368	:	10	ro
	12, 485	10,004		12,850	10,400	13,235	14,818 12,821 13,243	15,043	11,918	11,714	13,660	15,377	11,876	12,548	00-101	13, 408 13, 756 15, 417
	6,936	0,000		7, 335	000,00	7,353	7,123	5, 35/	6,621	6,508	7,7589	8,043	6, 598	6,971	10F, 60	7,449 7,642 8,565
1.7	2.2	e5	1.4	1.9	2.0	1.6	1.0	1.9	1.5	1.5	61	1.4	9	3.1	1.8	2.1
				6.20			10.19	Ø. 04		6.34	0.02		6.24	10.01		
				1.09	10.1		1.09	1.10		1.13	1.97		99	10.53	T. 00	
				73.03	00.40		71.44	25.20		66.50	24. US		66.17	69. 67 72. 48	01:00	
				4.63	17.0		5.04	9.75		44.59	0.01		4.75	2.83.2	****	
23.24.5	8828	044	325.23	3285	4.12.53.5	24.4	2,2,6	336	200	55.4.88	28.2:	1989	97. 47. 97.	44.65	222	474.44.64
10.88	13.98	20.80	18,65	14.18	9.08	8.00	11.57	14.91	19.02	20.44	9.63	10.35	19.15	13.73	8.97	10.58
	50.55	28.28.38 26.28.38	54.39	25.23	51.56	52.98	25.25	51.79	48.75 50.15	62.44 48.83 48.83 8.93	54.00 54.00 8.93	51.92 53.40	46.98 48.12	57.28 57.28 59.38	28.93	63.97 54.32 55.73
	33.50 33.50 14.00		25.96 26.54	38.8.8 8.8.8.8	36.19	36.34	33.98	30.16 31.14	29. 8 29. 44	37.66 29.49 30.17	35.29	34. 98 35. 98	31.50 32.26	28.34	35.02	33.58.8 37.49 45.88
2.47	2.97	. 57	2.18	2.67	3.17	2.91	3.19	3.14	2.79	2.25	1.54	2.75	2.37	3.88	2.23	2.52
-00	n → 010	0-1010	0-010	0 C3 C	2-010	2-101	m-01	m → 01 :	2-0	30 - C1	2000	200	. co co	2-010	0-010	200
<	4	д	п	Д	4	∢	Ö	4	∢	Ö	4	4	Ö	٧	4	4
4800	4810	6367	6313	6321	1130	1140	152D	1030	104D	1150	254D	255D	272D	7196	483D	484D
Bowen, 1 mile north of Suffield mine, Walsen bed (2,000 feet north of opening, 61-inch bed).	N. 30° W. of opening, 5-foot	S., R. 65 W., Cokedale mine	off east entry 3, 752-inch bed,	ntry 4 west), 65½-inch cut	nine (5,200 feet north of open.t.).	orth of opening, 65½-inch cut)	ie, 41 tons)	Engleville, 3 miles east of Trinidad; Engle mine, 1 mile south of opening, 86½-inch bed.	east of opening, 74-inch cut)	ie, 24 tons)	(3,800 feet south of opening, lope 3, 54-foot cut).	outh of opening, 94-inch cut).	ch screenings, 29 tons)	,500 feet south, main slope, 72-foot cut.	T. 33 S., R. 66 W., Primero out (4,200 feet west of drift	ro bed. northwest of opening, blind
n, 1 mile north of (2,000 feet north	Same (2,600 feet N. 30° bed).	Cokedale, sec. 25, T. 33 S., R. (natural coke).	Same (room 16, off east 612-inch cut).	Same (room 26, entry 4 w	Delagua, Delagua No. 2 mine (5,5 ing, 654-inch cut).	Same (7,000 feet north of	Same (run of mine, 41 to	ville, 3 miles east of south of openin	Same (10,000 feet east of.	Same (run of mine, 24 tons)	Hastings, Hastings mine (3,800 feet south control room 1, south slope 3, 5‡-foot cut).	Same (4,600 feet south of	Same (slack, 3-inch scree	Morley, Morley mine, 1,500 feet so Engleville bed, 7½-foot cut.	Primero, NE. 4 sec. 26, T. 33 S., mine, 79-inch cut (4,200	mouth), Frime Same (3,000 feet entry 4).
Воже	01	Coked		-11 0		0	0	Engle			Hasti			Morle	Prime	
	98	3000	—Вı	111. 2	2—1	J——	-6									

Table of chemical analyses—Continued.

suce.	Page of this bulletin.		450	451	452	452	452
Reference.	Bul- letin No.	79	381	381	70 70	381	368
Calorific value.	British thermal units.	12, 602 12, 760	15, 248 13, 781 14, 101 15, 559	12, 933 13, 340 14, 701	12,920 13,358 14,762 12,195 12,586 14,710	12,645 13,127 14,729	13,887 14,116 15,653
Calorifi	Calo- ries.	7,001	8, 471 7, 655 7, 834 8, 644	7,185 7,411 8,167	7,178 7,421 8,201 6,775 6,992 8,172	7,025 7,293 8,183	7,715
	Air- dry- ing loss.	0.8	2.4	1.4	1.1	2.7	7
	Oxy.	7.29	7.49 9.80 7.95 8.77	12.30 9.90 10.91	11.33 8.50 10.40	11.46 8.51 9.55	
	Nitro- gen.	1,36 1,38	1.65	1.31	1.36	1.19	
Ultimate.	Car-	69.96 70.83	84. 64 74. 24 75. 97 83. 83	71.98 74.24 81.81	67. 60 69. 77 81. 55	70.93 73.63 82.62	
P	Hy- dro- gen.		5.56 5.22 5.03 5.62	5.08 4.89 5.39	4.86 4.05 5.43	5.30 5.70	
	Sul- phur.	0.54	8344888	17:88:04:05: 04:05:05:05:05:05:05:05:05:05:05:05:05:05:	8554888888	47.49.94.0	22222
	Ash.	16.12	9.16 9.37 10.33 10.77	8.98 9.26 8.42 8.75	9.20 9.51 13.99 14.44	19.23 10.48 10.88 12.76	13.23 9.66 9.80
nate.	Fixed carbon.	50.99	61.70 58.75 60.13 66.35 77.63	90.69 53.54 55.22 60.86 53.27	53.38 51.44 58.77 49.31 57.51	50.45 62.46 52.16 54.15 60.76	56. 62 65. 25 59. 56 60. 54 67. 12
Proximate.	Volatile matter.	31.65 32.05	38.30 29.81 30.50 7.97 8.31	9.31 35.52 39.14 30.55 37.98	36.08 37.31 36.23 36.23 41.23	30.32 37.54 33.69 39.24 29.09	30,15 34,75 29,16 29,66 32,88
	Mois ture.	1.24	2.28	3.04	3.28	3.67	1.62
	Con- di tion.	10	∞ <u>+</u> 000+0	0-00-0	m=0m=0m,	-000-000-	00000
Sample.	Kind	Ö	д д	я <b>4</b>		) m 4	4
, a	Lab- ora- tory No.	537D	6370	6530 735D	734D 805D	6533 230D	2310
	Locality, bed, etc.	COLORADO—Continued.  LAS ANMAS COUNTY—continued.  Primero, Primero mine—Continued.  Same (run of mine)	Same (room 1, third butt entry A, off entry 9, 7-foot 7½-inch cut).  Same (west entry 200 feet in, natural coke)	Primrose (near Kipner), SE. ‡ NW. ‡, sec. 5, T. 30 S., R. 65 W., Primrose mine, room 3 off entry ?} north, 4‡-foot ent.  Rugby, 1‡ miles southwest of; sec. 9, T. 30 S., R. 65 W., Rapson mine, Cameron bed (250 feet south of	DO :	Same (purked iron car), "Niggerneau," 402- inch bed).  Same (entry 3 south, 464-inch bed)	of slope, 45½-inch bed). Same (3,000 feet west of slope, 40½-inch bed)

	453	453		453	453	453	454	454	454		:	:	455	455	:	455
308	368	368	368	:		:	10		381	10	:		368	368	368	368
12, 474	15, 552	13,253	12, 726	15, 570		12,452	15,563	13, 505	13, 113	15, 401 12, 787 13, 095	11,653		13,437	10, 101	12,366	12, 469 12, 469 12, 719 15, 151
7,069	8, 0±0	7,363	7,070	8, 050		6,918	8,646	7,503	7,285	8,556 7,104 7,275 8,509	6,6,6,8		7,465	6, 00*	6,870	8,579 6,927 7,066 8,417
6.	1.6	1.4	8	5.4	4.5	5.0	ાં	7.	1.0	1.1	0.		1.3	1.6	1.5	=
6.35	# <i>J.</i>		7.05	70.7		9.21	5.09		8.52	6.8.04	32.28.8				9.07	
1.08	I. 30		1.05	83 : :		1.24	1.55		1.13	1.04	1111				1.02	1.22
69.46	86.60		69.99	80.63		69.54	86.91			71.12 72.83 55.83					68.37	84.08
4.61	5,47		4.36			5.21	5.71		4.56	5.10 4.63 4.48	22.23				4.86	5.61
689	\$ 50.1.K	53.85	1225	8:3:2:6	688	.63	7.88.00	200.05	288	8828	55.	. 56	335	69.	689	25.1.28 25.1.28
17.83	9.92	13.01	16.83	11.33	17.07	14.21	12.45	10.88	12.96	14.16	19.10	17.74 17.86	10.96	10.64		15. 73
51.39	57.78 59.08	55.74	53.36	55. 29 55. 34 58. 86 58. 86	52.25	53.79	67. 23 55. 86 57. 25	65.61 56.43 57.52	56.97	66.91 54.07	79.10	79.57	97. 55 52. 79 54. 02	55.53	61. 79 50. 11 51. 47	61.62 50.07 51.08 60.84
28.82	30.08 30.77	29.15	28.37	24.71 27.35 29.09	36.83	26.22	30.29 30.01	84.89 80.13 81.39	28.18	33.08 3.09 3.09 3.43 5.69	3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	85	33.97	33.17	38.21 31.20 32.06	32.23 32.23 39.16
1.96	2.22	2.10	1.44	5.98	5.19	5.78	2.40	1.90	1.89	2.35	.49	69	2.28	2.56	2.66	1.97
		2-010			o	2-01	<b>⇔</b> ⊢00		2		2 10 10		~~~~		100-01	m = e1 m
0	4	4	Ö	m	m		4	4	В	0	0	0	4	A	O	⋖
2450	232D	233D	3000	10210	10209	10218	479p	485p	6310	536D	6311	6457	1010	1110	1170	102р
Same (run of mine, 32 tous)	Pledmont mine, Lower bed (2,600 feet southeast of slope, 572-inch bed).	Same (2,600 feet southwest of slope, east entry 12, 443-inch bed).	Same (run of mine, 32 tons)	Same (main slope, 2,000 feet south of opening, 42-inch cut).	Same (south entry, 3,500 feet south, 70-inch cut).	Same (composite of Nos. 10209 and 10210)	Sopris mine, NW. § SE. § sec. 33, T. 33 S., R. 64 W. (7,000 feet southwest of slope, Cameron 47-	inch bed). Same (6,800 feet southeast of slope, Cameron 53-inch bed).	Same (entry 17 west, 432-inch bed)	Same (run of mine)	Starkville, SW. 4 SE. 4 sec. 36, T. 33 S., R. 64 W., Starkville coke ovens.	Tabasco, Tabasco ovens, taken from mine cars, coke	Terclo, Las Vega mine, No. 3 bed (800 feet north of opening, 42-inch cut).	Same (1,000 feet north of opening, 39-inch cut)	Same (run of mine, 28 tons)	Same, No. 2 bed (900 feet north of slope, 81-inch bed).

Table of chemical analyses—Continued.

ence.	Page of this bulletin.	55		456	456	456	457	457	457			458
Reference.	Bul- letin No.	368	368	381			381	368	368	368		341
Calorific value.	British thermal units.		11,720	15,026 11,869 12,242	15,098		13,572	12,526	19, 082	11,682	13,000	11,968 12,893 14,256
Calorifi	Calo- ries.		6,511	8, 348 6, 594 6, S01	8,388		7,540	6,959	8,379	6,490	6, 6	6,649
	Air- dry- ing loss.	2.0	1.7	1.7	1.4	6.	2.0	9.	::: :::	9.		2.4
	Oxy-		9.15	8.45 9.25 6.75	% %		10.32	0.40		77.86		16.24 10.62 11.74
4	Nitro-		1.06	1.36	1.18		1.10	L. 60		1.17	7. 10	1.34
Ultimate.	Car-		65.28 67.21	83.70 65.91 67.98	83.84		75.74	00.40		64.45	07:70	67.54 72.76 80.45
ר	Hy- dro- gen.		1 1 1	5.50 4.94 4.74	4 4		4.55			4.83		5.53
	Sul-	0.69	1287.5	86.63	8%8	588	1.5.61	:8:8:	588	8828	61.	8888
	Ash.	18.20	18.75 19.13 19.69	18.34	13.53	11.65	7.41	14.62	13.77	18.82		9.56
mate.	Fixed carbon.	48.36	49.84 48.06 48.06	61.61 50.61 52.19	64.37 56.77 58.06	67.39 58.59 59.79	58.83 50.74	46.97 48.10	50. 53 50. 62	58.91 45.29 77.76	01.10	50.98 54.92 60.73
Proximate.	Vola- tile mat- ter.	30.48	31.41 30.94 30.94 83.65	38.39 28.01 28.89	25.63 27.46 28.10	32.61 27.75 28.32	30.62	36.08	34, 55 35, 31	33.12 34.08 24.08	10.01	32.97 35.52 39.27
	Mois- ture.	2.96	2.87	3.04	2.24	2.01	3.14	2.33	2.15	2.77		7.18
	Con- di- tion.	-	10100-01	m −101	n 01	10 H 03	m=01	2401	2010	0 - 01 c	2	100
Sample.	Kind.	4	C	Д	В	В	В	4	4	Ö		A
ŭ	Lab- ora- tory No.	112n	1165	6458	5151	5152	6455	257D	258D	3450		5724
	Locality, bed, etc.	COLORADO—Continued.  LAS ANIMAS COUNTY—Continued.  Tercio, Las Vega mine—Continued.  Tercio, Samo (1 Stoffcer north of slove No. 2 hed. 72-luch	cut).	Trinidad, 5 milesnorth of; NE. 3 SW. 3 sec. 24, T. 32 S., R. 64 W., Bowen mine, lowest bed, room	11, north entry 2, east entry 6, 7-foot cut. 14 miles west of; sec. 26, T. 33 S., R. 66 W., Primero mine (bottom part of coal bed; not mined).	5 miles southwest of, sec. 33, T. 33 S., R. 64 W., Sopris mine, Sopris bed (top part of bed; not	Wildcat Creek, I mile south of: NE. 4 sec. 18, T. 32 S., R. 68 W., Clark's prospect (100 feet from	Wootton, Red Robin mine, Savage bed (260 feet west of opening, west entry 2), 534-inch cut.	Same (275 feet west of opening, west entry 1,58-inch cut).	Same (run of mine, 25 tons)	MESA COUNTY.	Cameo (4 miles northeast of Palisades), NW. 4 SE. 5 sec. 34, T. 10 S., R. 98 W., Bailey mine, Cameo bed (165 feet in, 64-foot cut).

458	468	458	468	468		654	459	460	09	99+	195	461	191	
316	316	316	1.0	13	1.0	316	316	316	316	316	341	316	316	316
	11, 639 12, 708 14, 396	14, 472		12, 186	11,318 12,371	12,188	12, 256 13, 577 14, 382	12,260 13,538 14,450	14,000	12, 409 13, 118 13, 963	8, 455 8, 991	12, 503		11,099 12,530 14,096 14,202
	6,466 7,998	8,040		6,770	6,873	7,381	6,809 7,543 7,990	6,811 8,028	egn 'e	6.894 7.757	4, 995	6,946		6, 166 6, 961 7, 831 7, 890
2.8	4.3	2.6	1.7	2.1	3.6	3.6	33	5.5	1.6	01	2.1	5.2	3.5	5.6
	16.50	#2.11 1.24			15.93	12:11:	2458 3458	50.93	10.02	12.82	13.81			20.95 12.19 13.71 13.87
	1.31	1.00			1.31	1.57	2222	32223	1.00	8558	9			1.21
	65.52 71.64 81.04	81.04						8.55.8 8.49.1 8.49.1 8.49.1		70.18	79.41			61.84 69.81 78.54 79.38
	5.45	0.02			6.38	5.55	5.5.2.3	9.50.50.50	00.00	55.53	5.42			5.46 5.32 5.38
627	2882	627	1883	99.	30.55	1.26	1.30	1.02	93	65.53	8.80	32.5.0	18.81	884 84 1.07
5.14	10.73	13.11	9.37	8.37	12.30	6.16	5.05	6.32		5.73	28.00	10.22	6.84	9.84
	47.53 51.90 58.70					48.67 53.05 56.88	49.95 55.31 58.01	49.33 54.47 58.14	52.75	56.57 58.74 62.53	41.21	60.95 50.24 56.75		57.74 44.49 50.22 56.50
33.69	33.32 36.38 41.21	31.07	37.90	38.25	33.98	36.90 40.23 43.12	35.27 39.07 41.39	35.51 39.21 41.86	38.13	33.30 35.20 37.47	26.41	43.25 23.25 23.25 25.25 25.25	34.83	43.25 43.50 43.50
8.17	8, 42	7.55	7.11	7.43	8.52	8.27	9.73	9.44	: :	5.40	5.96	10.89	10.75	11.42
		2 m 04 c			2-010						d. ← 03 :	m = 01 m	01	m → c1 m +
- B	<b>m</b>	<u>~</u>	V q	٧ 0	C	=	<b>a</b>	<b>a</b>	n	=	B	<b>A</b>	a	m m
3547	3550	3542	839D	840D	852p	3586	3585	3587	3581	3640	5530	3494	3496	3490
NW. 2 NW. 2 sec. 34, T. 10 B., R. 98 W., Cameo miling northwest and of miline workings Cameo	Det (7-100t 11-1101). Same (room 5, off main entry, 8-foot 6-inch cut).	Same (upper bed, end of main entry, 8k-foot cut).	Same (3,500 feet northwest of opening, slope entry, 644-inch cut).	Samo (3,700 feet northwest of opening, west entry 1, 714-inch cut).	Same (run of mine)	Fruita, about 13 miles north of; NE, 2 sec. 30, T. 8 S., R. 101 W., Nearing mine, Cameo bed (4-foot cut).	About 12 miles north of; NW. 4 sec. 29, T. 8 S., R. 101 W., Nugent mine, Lower bed (end of main entry, 44-foot cut).	About 13 miles northeast of; SW. 4 sec. 27, T. 8 S., R. 101 W., Kiel or Gross mine, Cameo bed (end of main cutry, 34-foot cut).	About 13 miles north of; SW. 4 sec. 18, T. 8 S., R. ion brospect, Palisades bed (61-ion out)	Northeast of, sec. 5, T. 9 S., R. 100 W., Tomlinson (or Hunter) mine, Cameo bed (8-foot cut).	Grand Junction, 14 miles south of; SW, ‡ SW, ‡ see, 26, T. 1 S., R. 1 W, 80 feet from mouth of de-	About 11 miles northeast of, 10 miles northwest of Palisades, SW. 4 sec. 8, T. 10 S., R. 99 W., Book Cliff mine, and of main entry, Camco	Same (face of southeast entry, 7-foot 7-inch cut	Same (face of northwest entry, 7-foot 10-inch cut).

Table of chemical analyses—Continued.

1 .	1 2 00.			197	462	462	463	463	£63	463	463	463	464
Reference.	Page of this bulletin.						371 4	316 4 371			371		371
	Bul- letin No.			. 371	316	316	. 31	37	316	316		371	
Calorific value.	British thermal units.									12,308 13,309 14,231	14,332		12, 443 13, 462 14, 391 14, 477
Calorifi	Calo- ries.									6,838 7,394 7,906			6, 913 7, 479 7, 995 8, 043
	Air- dry- ing loss.			5.8	3.1	7.2	1.8	9	3.1	2.0	2.5	7.8	2.2
	Oxy-									17. 92 12. 15 13. 00	13.13		16. 79 10. 88 11. 64 11. 74
	Nitro- gen.			1 1						1.55 1.68 1.79	1.81		1.56 1.69 1.80 1.82
Ultimate.	Car- bon.									68. 43 73. 99 79. 12	79.90		69. 47 75. 16 80. 34 81. 01
P	Hy- dro- gen.							•		5.26			
	Sul- phur.			0.68	28.88	825.51	255	8228	S. 24.5	58.98	.83 91	25.55	. 77. 83.
	Ash.			6.72	9.64	6.35	15.04 16.15	9.36	5.58	5.99	5.96	6.92	5.96 6.45
nate.	Fixed carbon.			46.35	51.21	57.32 45.69 54.00	58.38 43.90 47.13	56.21 48.37 51.75	57.51 50.89 55.94	59. 59 50. 46 54. 56	48. 72 53. 41	57.14 36.16 49.43	52.91 57.24 61.19
Proximate.	Vola- tile mat- ter.			35. 90 40. 36	38. 13 38. 13	42.68 32.57 38.49	34.20	35.75	34. 51 37. 93	36. 93 38. 96 41. 66	36.55	42.86 30.07 41.11	38.35 38.35 38.81
	Mois- ture.			11.03	9.54	15.39	6.86	6.52	9.02	7.52	8.77	26.85	7.57
	Con- di- tion.			-67	2010	n 01	m – m	:0 H :03	2010	m → 01 m	4110	m <b>~</b> ≈	n – 01 co →
Sample.	Kind.			д	g	щ	Д	щ	В	р	Д	.щ	Д
ďŽ	Lab- ora- tory No.			3581	3495	3493	3489	3488	3539	3541	3549	3543	3546
	Locality, bed, etc.	COLORADO-Continued.	MESA COUNTY—continued.	Grand Junction, Book Cliff mine—Continued. Same (first coal below upper bed, reported 2½ feet, collected by mine superintendent).	About 11 miles northeast of; NW. 4 sec. 7, T. 10 S., R. 99 W., Steel mine, Palisades bed (4-foot	About 12 miles northeast of; sec. 1, T. 10 S., R. 100 W., Black Dlamond mine, Palisades bed (5 <sub>2</sub> -	About 12 miles northeast of; sec. 36, T. 9 S., R. 100 W., Bob Cat mine, Cameo, bed (44 to 55	Inch cut).  About 12 miles nearly north of; sec. 35, T. 9 S., R. 100 W., Excelsior mine, Palisades bed (55-	Palisades, SW. 4 sec. 3, T. 11 S., R. 98 W., Palisades, SW. 4 SW. 7 sec. 3, T. 11 S., R. 98 W., Palisades bed, room 1, south	entry). Same (room 1, west entry)	Same (room 5, west entry)	12 miles northeast of; Norwood prospect (Cameo, 952-inch, bed).	13 miles northeast of; NW. § SE. § sec. 3, T. 11 S., R. 98 W., Riversidemine, Palisades bed (from working face, 36-inch cut).

465 465	466	466	467	467	467	467
316 371 371 371 341	316	316	316	316	316	316
10, Srt 12, 623 13, 570 13, 648 10, 408 11, 761 11, 761 13, 320	12,906 13,648 14,531 14,652	11, 484	15,271		14, 330 14, 46.8 15,849	15,916
6, 034 7, 539 7, 539 7, 539 7, 539 6, 534 7, 400	7,170 7,582 8,073 8,140	6,3%0	000 000 000 000 000 000 000 000 000 00		7, 961 8, 038 8, 805	8,842
4 1 2	2.0	6. 8.	9. 4	च च	CC C3	₹.
23. 95 114.4.1 114.5.4 114.5.4	13.71 9.39 9.98 10.11	12.64	7.73		4.34 4.34	₹ .
1.40 1.75 5.71 5.71	1.47 1.55 1.66 1.67	88 96 1	1.19		1.85	2.04
62, 19 77, 28 77, 71 78, 33 78, 33	72. 26 76. 41 81. 36 82. 30	64. 24	25.7.3		79. 61 80. 38 88. 05	88. 55
64.0.0 80.0.0 50.0.0 80.0 80.0	5.80 5.50 5.86 5.92	4.87			4. 66 5. 02	5.05 d unde
.63 .55 .59 .61 .105 1.105	1.01 1.07 1.14 78 .82	.63 .63 .74 1.02	1.01	5505	344.85888	. 59 . 60 . 66 re listo
6.01 6.99 7.95 8.34 10.36 11.71	5.75 6.08 5.15 5.45	8.58 9.14 16.34 17.71	13.40 13.61 6.45 8.16	6.95 7.04 9.00 9.12	7.57 7.66 8.62 8.70	4 1 1.22 22.03 67.84 8.92 59 5.05 88.55 2.04 2.2 22 68.88 9.03 60 60 24.50 75.50 75.50 60 60 60 60 60 60 60 60 60 60 60 60 60
48. 73 56. 63 60. 63 60. 89 60. 30 60. 30 60. 30 60. 30 60. 30 60. 30 60. 30		57.35 49.44 52.66 57.95 52.12 52.12			68.89 69.88 69.88 69.69 69.69 76.23	67.84 68.68 75.50 t Count
33.33 36.33 36.34 36.34 41.73 41.73	38. 71 40. 94 43. 59 38. 14 40. 33	42.65 35.86 35.86 42.05 30.17	31. 26 31. 75 36. 74 39. 67 43. 19	21. 48 23. 42 22. 38 22. 67	22.22.58 22.22.58 22.23.59 23.70 23.70 23.70	22. 02 22. 29 24. 50 Moffa
13.96	5.44	6.12	1.54	1.33	1.15	1.22
	100410	0-00-00		79878	m + 01 m + 01 m	1 5 5 1 4 4 1 4 4 4 4 4 4 4 4 4 4 4 4 4
<b>a</b> a a	р п	д д	д д	g v	я я	B
3540	3992	3991	3993	4041	4043	4049 s and t
2 miles northwest of: SE. 2 NE. 3 sec. 6, T. 11 S., R. eut).  2 miles northeast of, NE. 4 sec. 3, T. 11 S., R. 98 W. (prospect pit, Cameo bed, 61-inch cut).  9 miles southeast of; SW. 4 SE. 3 sec. 17, T. 12 S., R. 97 W., Patterson mine (125 feet from mouth of opening, main entry, 4-footcut), Cameo bed MORPATE.		3 miles southwest of; Wood mine (100 feet in, 47-inch cut), Spencer bed. 7 miles north of; Dakota formation	8 miles north of; Haller mine, 55 feet from mouth, Dakota formation coal (33-inch cut).  10 miles southwest of; Todd mine, sec. 28, T.35 N., R. 14 W. (28-inch cut).	Coal Basin (about 30 miles south of Glenwood Springs), Coal Basin mine, "Sunstine" bed (600 feet from opening, 724-inch cut). Same (9-foot bed, upper bench, sampled from railroad car).	Same (1,600 feet from mouth, 9-foot cut)	Same (2,500 feet from entrance, room 50, 9-foot cut).

Table of chemical analyses—Continued.

	Ω̈́	Sample.			Proximate.	nate.			Ω	Ultimate.				Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy- gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
COLORADO-Continued.																	1
PITKIN COUNTY-continued.																	
Coal Basin, Coal Basin mine—Continued. Same (1,100 feet west of opening, on new slope, 78-inch cut, waste sample).	5346	4	-0	2.39	19, 44	70.76	7.41	0.52	1 0 1 0 1 0 1 0				1.2	7,987	14,377	rþ	467
Same (1,100 feet southwest of opening, on new slope, 67-inch cut, waste sample).	5255	₹	n → n	1.20	22.39	73.79	3.55	74					4	8,855 8,439 8,541	15,939 15,190 15,374	70	467
Same (run of mine)	894D	Ö	, , , , , , , , , , , , , , , , , , ,	3.07	23. 49 23. 39 23. 39	76.51 65.10 67.16	9.16	85.3	4.96	78.81	1.09	4.75	1.8	8,855 7,772 8,018	15,939 13,990 14,432	NO.	
Same, Coal Basin bed (main slope, air course, called bone coal, 46-inch cut).	5262	4	о-101	1.67	22.83	74.17 67.73 68.88	9.28	4.4.7	5.27	89.80	1.92	2.29	4	8,855 7,812 7,945	15,939 14,062 14,301	13	467
Same (second level on right of slope, called bone coal, 138-inch bed, 60-inch cut).	5249	4	2010	1.60	23.94 19.00	. 6.0. . 6.0. . 8.8. . 8.8.	19.42	34.5	0 0 0		0 0 0		6	8,773 6,928 7,041	15, 791 12, 470 12, 674	10	467
Same (run of mine)	8880	Ö	α ω⊶α	3.75	22.82 22.12 32.98	75.18 62.41 64.84	11.72	. 40	4. 54	75.80	1.65	5.84	3.1	8,773 7,416 7,704	15,791 13,349 13,867	1.0	:
Guleh (Spring Guleh station), about 21 miles south of Glenwood Springs, Spring Guleh mine (Anderson bed, 2,070 feet from opening, 58-inch	4009	п	<b>∞</b> −000	2.77	26.17 35.15 36.15 37.46	73.83 58.88 60.33 74.54	3.50	.48 .45 .49	5.17	89.66	1.72	2.97	1.5	8,773	15,791	316	468
cut). Same (Sunshine, 14-foot bed, 5,300 feet from opening, 112-foot cut).	4010	a	-100	2.30	34.74 35.56 37.99	56.71 58.04 62.01	6.25	455.4	5. 23	76.12 77.91 83.24	1.58	10. 42 8. 57 9. 17	1.2	7,766 7,949 8.492	13.979 14,308 15,286	316	468
Same (north Anderson entry, about 5,200 feet from opening, Anderson bed, 43-foot cut).	9169	a	4-101	3.4		55.4	7.2	57	5, 46	83. 64 74. 49 77. 10	1.59	9.21 10.73 7.99	2.1	8,522 7,500 7,765	15,340 13,500 13,950	;	468
Same (Sunshine bed, 5.200 feet from opening first incline, south entry, 84-foot cut).	9108	В	თ <b>⊣ ი</b> ! თ	2.88	38. 27 34. 26 36. 97	62. 0 56. 74 58. 42 63. 03	7.11	29. 4.4. 12.	5.5.5.5 5.2.4.5 6.2.4.5	83.33 77.13 83.47	1.74	2.04 7.52 8.44 8.44	1.8	2,330 7,622 7,848 468	15,100 13,720 14,126		408

	400	469	470	470	470	171	121	471	471	47.2	472	47.5	473	473	473
_	341	316	316	316	316	316	316	316	316	316	341	341	316	316	316
	10,690	10,112; 10,212; 13,659; 13,712; 13,123; 14,123	13, 424		11, 324	10,070			13,063 14,076	14, 139	10, 935 12, 730 13, 659	10, 737 12, 118	16, 283		
	6,670	4,2,4,4,6 5,6,5,5 5,6,5,5 5,6,5,5 5,6,5,5 5,6,5,5 5,6 5,6	7, 458		6,97,5 17,921	000 ()			7.837	7,800	6,075	5,965	7,332		
	3.2	17	2.6	 	2.4	-	 	3.7	3.6	3.0	4.8	3.1	15.1	4.2	6.1
		25.94 16.03 16.95	17.04		22.05 15.11 16.42	10.00			21.83 12.66 13.65	13, 73	25.50 15.11 16.09	13.95	15.30		
_		1.53	1.62		1.48	I. 49			1.50	3 : :	1.06	1.12	1.41		
		01.92 71.67	71.0		63.39 69.97 76.05	10.01			04.31 73.10	79.27	62. 15 72. 35 77. 07	62.64	77.92		
_		5.71	77.0		2.2.2.2	aT o			5.72	5.40	5.65 4.75 5.06	4.75	0.21		
-	£39.	3433	74.	25.22	58.8	1.55	32.58	66.47	3288	88.25	3844	. 51	3688	32,6;	8,625
	8.86	5.39	9.49	9.60	7.24	5.18	2.24	4.18	6.33	6.26	5.26	7.81	3.91	5.18	6. 57
Ī	47.05 52.84	45.57 52.75 55.75		50.43	45.38 50.10 54.44	50.51	45.72	53.31 55.61 55.61	53.91 53.91	42.35	60.53 60.53	48,44	38.92	47.67 55.04	58.54 48.78 54.95 59.34
	33, 13	36.17 44.25	33.61	38.86	37.97 41.91 45.56	36.33	40.04	39.65	38.89 41.90	39.02	31.83 37.05 39.47	32, 36	42.30 42.90 7.90 7.90	38.38 38.38 38.38 38.38	33. 43 37. 65 40. 66
	10.06	13.60	88 88 88	10.31	9.41	12, 53	12.00	12.55	12.03	13.20	14.10	11.39	24.87	13.39	11.22
	-010	0 03 00	4-010	0-010	0-0100-	*-010	n → c1	m 01 0	2-210-	4-01	2012	-010	2-010	m-010	20 m c3 m
	B	m	a	n	a	B	B	B	B	8	a	B	B	В	æ
	5516	3791	3851	3482	3498	3183	3504	3840	3847	3502	5520	5519	3846	3850	3848
RIO BLANCO COUNTY.	Angora, southwest of, on White River at mouth of Red Wash, sec. 11, T. 2 N., R. 101 W. (44-foot	Coal Creek, 12 miles northeast of Meeker, Wesson mine (25-foot bed, 8‡-foot cut), Wesson bed.	Curtis Creek, 64 miles north of Mecker, prospect (70 feet from mouth, 69-inch cut).	Meeker, 24 miles west of, NW. 2 SW. 2 sec. 28, T. 1 N., R. 94 W., Fairfield mine, Upper bed (650 feet	Same (523 feet from entrance, 64-foot cut)	2 miles west of; on stage road, Adams mine (100 feet from mouth, 49-inch cut).	Same (100 feet from mouth, 7-foot 4-inch cut)	3± miles northwest of; Pollard mine (510 feet from entrance, 73-inch cut).	34 miles northwest of; Black Diamond mine (200 feet from entrance, 87-inch cut), Lord bed.	34 miles west of; on main stage road, Lion Canyon mine (1,140 feet from entrance, 101-inch cut).	Rangely, 3 miles south of; south side of Raven Perk, on Dragon Roed, see, 14, T. I.N., R. 102 W., Rector mine (11-foot 11-inch bed, 74-foot	Same (90 feet from entrance, weathered, 113- foot cut).	Spring Creek, 14 miles north of Meeker, at Ninemile Hill, prospect (44-foot cut).	Sulphur Creek, 4 miles from Mecker; Sulphur Creek mine (180 feet from entrance, 45½-inch cut).	Same (280 feet from entrance, 62-inch cut)

Table of chemical analyses—Continued.

ence.	Page of this bulle-tin.		473	473		474	474	474	474	475	475	475
Reference.	Bul- letin No.		316	316		285	285	285	285	316	316	316
Calorific value.	British thermal units.		11,336 12,870 13,919	13, 977		· · · · · · · · · · · · · · · · · · ·	11,740	14,85/	1 0 0 1 0 0 1 0 0 1 0 1 1 0 0 1 0 0 1 0 0	11,390 13,115 13,563	13,628	6 0 0 0 0 0 0 0
Calorif	Calo- ries.		6,298 7,150 7,733	(,, 703			6,522	8,234		6,328 7,286 7,535	7,571	
	Air- dry- ing loss.		3.7	3.3		5.7	4.2	4.2	5.7	4.9	5.7	4.4
	Oxy-gen.	-	21. 93 12. 89 13. 94	14.02			7.84	80 %		25.89 16.35 16.91	17.03	
	Nitro- gen.		1.52	Ť			1.39	F. 63	8 8 8 8 9 9 8 9 9 9 9 9 9 9 9	1.23	1.28	
Ultimate.	Car- bon.		63.89 72.52 78.45	16.81			73.40	92.88		64. 12 73. 83 76. 35	76.87	
	Hy- dro- gen.		5.72	0.43			2.26	2.00		5. 48 4. 63 4. 79	4.82	· · · · · · · · · · · · · · · · · · ·
	Sul-		0.47	52.		8.30	9,75	236.63	888	8,657.0	.59	200.52
	Ash.		6.66	9.95		5.47	14.03 15.08	9.31	5.59	2.87	6.08	5.86
mate.	Fixed car-		48.30 54.82 59.31	45.30 50.79 57.17		49, 41	25.01 81.24	95.67 60.00 64.42	47.36 53.66	547.54 54.74 56.61	33.58	46.07 40.81 50.52 54.47
Proximate.	Vola- tile mat- ter.		33.14 37.62 40.69	33.94 38.05 42.83		34, 32	83.42	25. 59	46.33	42.71 36.44 41.96 43.39	39.32	53.93 34.12 42.23 45.53
	Mois- ture.		11.90	10.81		10.80	6.94	6.85	11.74	13, 15	21.02	19.21
	Con- di- tion.		-010	4-0100		29 0	2000	m=01	2-01	2-02	4-10	m = e
Sample.	Kind.		Д	В		Д	д	В	В	Д	Д	Д
02	Lab- ora- tory No.		3845	3792		1946	1902	1937	1936	3707	3569	3571
	Locality, bed, etc.	COLORADO—Continued.  RIO BLANCO COUNTY—continued.  Subhur Creek. Sulphur Creek mine—Continued.	Same (470 feet from entrance, 71-inch cut)	Thornburg, below; NW. 4 SE. 4 sec. 29, T. 3 N., B. 92 W., canyon of Milk Creek, Wilson's mine (37 feet from entrance, 13-foot bed, 7-foot cut).	ROUTT COUNTY.a	Anthracite, sec. 24, T. 8 N., R. 87 W., 18 miles northeast of Hayden, head of Miller Gulch, Keitel mine,	West of: sec. 27. T. 8 N., R. 87 W., 14 miles northeast of: sec. 27. T. 8 N., R. 87 W., 14 miles northeast of Hayden, Crawford mine (Crawford 111-	Joot bed). Same.	Same (main entry 140 feet from entrance, 64-foot bed).	Axial, east of; on Milk Creek, Shafer mine, 119 feet in, 14+-foot bed.	Near, E. 4 sec. 30, T. 4 N., R. 95 W., on Deep Channel Creek, Keystone reservoir; 30 feet	n mine, 7-foot cut.  Same (90 feet in mine, 7-foot cut)

475	476	476	477	417	477	478	478	479	479	480	480	480	481
316	316	316	316	316	316					285	285	415	285 297 415
13,245	13, 325	11, 362 12, 913 13, 628	13, 687	) ( 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		11, 108	10,336	13,171	12, 208	11,017	110,511	10,652	10, 100
5,838 6,803 7,368	7,403	6,312 7,174 7,571	7,601			6,171	5, 742 6, 981	7,317 6,116 7,068	7,338 5,836 6,729	6,137 7,014 7,479	000,7	5,918	210 ()
6.3	3.5	3.4	6.2	6.5	17.6	10.0	13.8	10.2	10.7	6.2	4.1	9.7	44, C3
25. 42 14. 93 16. 17	16.29	24. 20 15. 37 16. 22	16. 32	* * * * * * * * * * * * * * * * * * *		24.83	28. 63 15. 61	16.53 16.53 16.53	17.47 25.11 15.34	15.33	10.04	22. 15 12. 64	
1.01	1.28	888	1.03			1.32	111. 122. 123.	1.1.3	11.11	3284	1. (3	11.80	
8.0.5.5 8.2.2.5		. 52.55 76.59	60.77							1772.85 88881		60.40	T. Cont.
2.4.7.	0.38	4.67	4.90				. 5. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.			38.54		4.76	on in the
55.	38.33	, 5383	1.15	15.53	583	25.25	35.83°	3.5.8.	9255	24.4.5	1.50	8.8.9.5	1.86
6.58	2.03	4.62	6.31	3.71	5.03	5.47	3.78	3.68	7.40	6.22	10.26	9.79	4.18
44.46 51.80 56.10		54.55 54.03 57.02								46.91 58.61 57.17			53.53
34.78 40.53 48.90		42.83 42.98								35.15 40.17 42.83	33.85		37. 07 41. 76 43. 82
14.18	11.25	12.01	15.37	15.26	31.40	12. 43	17.75	13.47	13.28	12.50	8.59	12.47	1 11.23 37.07 47.28 4.18 1.00 0.00 0.18 1.00 0.00 0.18 1.00 0.00 0
-0365	44 03 0	o → 63 m -	*010	9 C1 C	2-010	n − 01 0	9 H 03 C	20 H C1	20 H C1 C	ಾ ≕ಣಣ =	* 03 0	m 01 €	3676
A	В	A	g	B	B	В	B	А	n	m	В	п	g g
3703	3466	3704	3690	3688	3689	9134	*9137	*9138	9135	1832	1831	*9136	2033
1 mile south of: on Spring Creek, Smith mine, 115   feet in, 814-foot bed, 5-foot cut.	14 miles south of, on Spring Creek, Meeker stage road, Collom mine, 24 foot 94-inch bed, 164-	4 miles south of, on Spring Creek, Meeker stage road, James mine, 100 feet in, 8-foot bed, 8- foot cut.	7 miles west of; on Morgan Gulch, Morgan mine, 20-foot bed (60 feet in, 5½-foot cut).	Same (100 feet in, 6-foot cut)	10 miles west of, on Boxelder Gulch, prospect pit, Upper 10-foot bed, wet sample, 9-foot cut.	Croig, 10 miles southeast of, see. 16, T. 5 N., R. 90 W., More mine, 140 feet northwest of opening,	10 miles southwest of NW. 4 SW. 4 sec. 29, T. 6 N. 19 W. Haubrich mine, 70 feet in, 82-	11 miles southwest of: W. 4 SE. 4 sec. 31, T. 6 N., R. 91 W., Rateliff mine, 60 feet in, 10-foot cut.	12 miles southwest of; NW. 3 sec. 6, T. 5 N., R. 91 W., Wise mine, Huntington Beach bed,	9,86	7 miles southwest of; on Trout Creek, sec. 14, T. 4 N., R. 86 W., 40 feet from entrance, 6-foot	Hamilton, 3 miles southeast of; see. 24, T. 5 N., R. 91. W., Hamilton mine, 150 feet in, 68-inch cut.	Hayden, about 6 miles south of, on Sage Creek, sec. 36, T. 6 N., R. 88 W., Barnes mine, 300 feet from mouth, 6g-foot bed, 6g-foot cut.

a Certain cities and towns now included in Mosfat County are here listed under Routt County.

Table of chemical analyses-Continued.

Reference.	Page of this bulletin.		481	482	482	482	482	482	483	483	484	484
	But letin No.		285	285 297	285 297	285	285	415	285	341 285	341	316
Calorific value.	British thermal units.		11,365	13,642		11,617	13, 578	11,376	13,675		11,093 12,650 13,599	13,729 10,564 12,377 13,338
Calorif	Calo- ries.		6,314	7,579		6, 454	7, 599	6,320	7,597		6,163 7,028 7,555	7,627 5,869 6,876 7,410
	Air- dry- ing loss.		2.7	9.5	4.0	2.4	4.6	8.	4.6	4.5	4.0	5.3
	Oxy- gen.							23.03 13.88	14.65		23. 15 13. 93 14. 97	15.18 25.90 15.09 16.26
	Nitro- gen.							1.41	1.70		1.32	1.29
Ultimate.	Car-							64.99	78.13		62. 72 71. 53 76. 89	77.94 60.07 70.38 75.84
P	Hy- dro- gen.							5.51	4.99		5.75	5.5.44 5.5.80 5.260 5.360 5.360
	Sul-		0.52	24.65	24.4.5	25.	8623	54.03	2002	1.04	1.10	. 99 1.16 1.25
	Ash.		5.66	4.12	5.13	5.58	4.60	4.62	5.82	5.74	6.12	6.14
nate.	Fixed carbon.		47.46	55. 51 55. 51	53.16	47.04	55.39 49.57 55.91	58.97 47.38 53.96	56.96 46.73 52.46	53.68	56.95 45.40 51.77 55.66	44. 48 52. 12 56. 15
Proximate.	Vola- tile mat- ter.		35.85	38.83	41.10	37.89 8.78 8.89	34. 61 38. 90 38. 90	41.03 35.80 40.78	43.04 36.53 41.01	40.58 40.58	48.05 41.25 44.34	34. 73 40. 69 43. 85
	Mois-		11.03	15.74	10.59	9, 49	11.34	12.20	10.92	13.31	12.31	14.65
	Con- di- tion.		-01	3 H C3 C	20 H CO	20-0	3 co cq	m ≈	α-α	m-01	m – e1 en	4-004
Sample.	Kind.		В	В	В	В	В	В	m	В	д	А
02	Lab- ora- tory No.		2032	2082	2034	2030	2210	9693	2031	3461	3462	3463
	Locality, bed, etc.	COLORADO—Continued. ROUT COUNTY—continued.	Hayden—Continued. 6 miles south of; on Sage Creek, sec. 2, T. 5 N., R. 88 W., entire 11 12-foot bed.	7 miles south of; NE. 4 sec. 4, T. 5 N., R. 88 W., Dry Creek mine, 10-foot 11-inch bed, 94-inch	8 miles east of; sec. 15, T. 6 N., R. 87 W., Wadge mine, Wadge 84-foot bed (new drift).	Same (old drift, 250 feet in)	12 miles southwest of; on Hayden Gulch, sec. 12, T. 4 N., R. 89 W., Green mine, Green bed.	10-foot cut. Same (7-foot cut)	14 miles east of; on Butcherknife Creek, sec. 1, T. 6 N., R. 87 W., Gartman mine, 30 feet from	Lay, south of; sec. 31, T. 7. N., R. 93 W. (Peacock 9-foot bed, 74-foot cut).	Same, Sweeney prospect (Sweeney 1413-foot bed, 48-inch cut).	Same, Wisconsin mine (214-foot bed, lower bench, 67-inch cut).

485	485		485	486	486	486	486		487	487		487	487	488	488
100	1015	1.0	297 285 415	297 285 415	285	297	381		368	368	368	381	381	381	381
	12,073	12,391	12,161 13,342 14,099	14,2/8			10,627 12,209 13,167			9,446	13,194 9,578 12,311	13,239 7,952 11,594	12,575 10,001 12,667	13, 273 9, 549 12, 391	12,974 9,182 12,343 13,298
	6,707	6,366	6,756	(,932			5,904 6,783 7,315			5,248	7,330 5,321 6,839	7,355 4,418 6,441	6,986 5,556 7,037	7,374 5,305 6,884	7,208 5,101 6,857 7,388
		6.	2.3	6.2 At	7	8.6	6.5		7.1	10.5	2.2	26.1	12.7	16.7	20.7
			10.85				24.55 14.97 16.15								18. 29 35. 11 16. 60 17. 87
		1.41	1.54	1.82			1.14				1.26	1.35	1.13	1.50	1.59
			68.59 75.25 79.52				61.54 70.70 76.25								74.65 51.81 69.65 75.04
			. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.				5.78								4.98 4.96 4.96
1.53	1.10		1.51	53	. 53	9988	8358		34		3.83	94.6.	5.8.4.	98.	. 36 . 48 . 52
9.22	7.80	10.65	5.38	8. 45 9. 64	10.67	5.15	6.34		5.49	5.14	5.45	5.35	3.61	3.46	
47.58 50.85 56.01			50.19 55.06 58.19	43.17 49.26 54.51			45.02 51.72 55.78	•							60.35 41.06 55.19 59.46
37.36 39.93 43.99			36.06 39.56 41.81	36.02 41.10 45.49			59.94 35.69 41.00 44.22								39.65 27.99 37.63 40.54
6. 43	6.16	7.53	8.85	12.36	12.03	30.28	12. 95		23. 50	24.52	22, 20	31. 41	21.05	22. 94	25.61
4000	-010	2000	9 H C3 C3 T	*=0100	-63	m=010	m → 01 m	ī	-00	2000	∞-0	m – m	- c	∞α	100-100
4	V	Ö	д	В	п	a	В		4	Y	Ö	щ	д	В	д
9150	9160	9710	1799	1991	1843	3436	6643		3500	3510	363D	6406	6374	6841	6375
Oak Creek, south of Eddy, 12 miles northwest of Yampa, Oak Creek mine (700 feet northwest of opening, south slope, Yampa bed, 704-inch	Same (face of main slope, 725 feet northwest of opening).	Same (run of mine)	7 miles south of Eddy; sec. 30, T. 4 N., R. 85 W., Shuster mine (114-foot bed, 804-inch cut).	Pool, 1 mile south of; sec. 9, T. 6 N., R. 86 W., Mc- Croskey mine, (47-inch cut, lower bench).	Same (817-foot cut)	Quaker Mountain, sec. 26, T. 9 N., R. 87 W., Egeria mine, weathered (87-inch cut).	Slater, 5 miles east of; SE. 4 N.E. 4 sec. 18, T. 12 N., R. 88 W., Lucksinger opening, from breast of main entry (82-inch cut).	WELD COUNTY.	Dacono, Golden Ash mine (1,100 feet west of shaft, 61-inch cut).	Same (1,100 feet north of shaft, 6-foot cut)	Same (run of mine, 33 tons)	Eaton, 1 mile east of; sec. 32, T. 7 N., R. 65 W., Star , mine (325 feet southeast of foot of shaft, 344-	Erie, 3½ miles northeast of; sec. 33, T. 2 N., R. 68 W., Ideal mine, lower bench, 300 feet west of foot	of slope, 100 feet of cover, 64-foot cut.  1 mile northeast of; sec. 19, ''1. I'N, 'R. 68 W. Lehich mine (750 feet north of foot of shaft.	over 100 feet below surface, 67-inch cut).  Fort Lupton, 8 miles west of; sec. 30, T. 2 N., R. 67 W., Warwolc mine (165 feet south of foot of shaft, 54-inch cut).

Table of chemical analyses-Continued.

Reference.	Page of this bulletin.		488	489	489	489	489		490	490		-	490
	Bul- letin No.		381	381	381	381	381		336	3323	332		
Calorific value.	British thermal units.		8,401 11,853	8,075 11,482	12,575 9,376 12,384	8,753 8,753 12,177	8,465 11,907 12,812		0 0 0 1 0 0 0 1 1 0	14, 198	12, 791 13, 297 15, 653	10,000	8,613 13,106 16,457
Calorif	Calo- ries.		4,667	7, 174 4, 486 6, 379	6,520 6,520	7,188 4,863 6,765 7,187	4,703 6,615 7,118			7,888	7,106 7,387 8,696	0, 130	4,785 7,281 9,143
	Air-dry-ing loss.		•21.9	22.9	16.2	24.5	24.1	•	1.9	2.3	3.2		24.0
	Oxy-gen.		37.35	17.63 17.73 17.73	33.90 16.27	17.01 37.30 17.12	38.59 18.14 19.51		* * * * * * * * * * * * * * * * * * *	*	5.06	0.0*	
di di	Nitro-gen.		1.03	11.58	324	1.39					1.13	1.00	
Ultimate.	Car- bon.		48. 95	75. 24 47. 16 67. 07	73.73 73.03 73.03	76.28 70.28 70.28	48.36 68.02 73.02 19.02	5	0 0 0 0 0 0 0 0		70.59	01.10	
	Hy- dro- gen.		6.55	6.6.09	6, 14 6, 14 7, 54	4.6.4.7 2.9.2 2.00 2.00 2.00	6.64	5	* · · · · · · · · · · · · · · · · · · ·		4.32	4. 00	
	Sul-		0.30	94. 03.	3.84	37	4.85		1.12	.69.	1.27		3.80
	Ash.		5.82	6.10 8.68	3, 25	4.22	5.02 7.06	•	9,34	7.84	14.49	:	13.38 20.36
mate.	Fixed carbon.		36.53	56.16 36.55 51.98	56. 92 44. 84	61.88 37.84 52.64	37.25 52.39 56.37		70.09	72.17	65.83 68.43 80.57		25.70 33.13 49.09
Proximate.	Vola- tile mat- ter.		28.52	27. 66 39. 34	27. 63 36. 49	29.82 29.82 41.49	28.83 40.55 63.63		18.17	17.14	15.88 16.51 19.43	:	26.64 40.54 50.91
	Mois- ture.		29.13	29.69	24. 28	28.12	28.90	0 0 0 0	2.40	2.85	3.80		34.28
	Con- di- tion.		72	n − 0	∞ <del></del> α	m → F1 m				2-010	2-00°	#	-0100
Sample.	Kind.		д	e	В	д	Д		¥	¥	O		д
502	Lab- ora- tory No.		6371	6373	6842	6407	6408		4155	4156	4320		3207
	Locality, bed, etc.	COLORADO-Continued. WELD COUNTY-Continued.	Greeley, 13 miles southeast of; sec. 24, T. 4 N., R. 65 W., White Ash mine (700 feet northwest of shaft,	13 miles southeast of; sec. 24, T. 4 N., R. 65 W., Farmer's mine, 500 feet south of foot of shaft,	Jaho Creek, 5 miles southeast of; sec. 34, T. 2 N., R. 68 W., Puritan mine, Main bed (6-foot 1 inch	Platteville, sec. 29, T. 3 N., R. 66 W., Platteville mine, 5-foot bed, lower bench (200 feet west of foot of shoft, under 50 feet of cover, 13-inch cut	Same, upper bench (200 feet west of foot of shaft) 28-inch cut.	GEORGIA. CHATTOOGA COUNTY.	Menlo, 7 miles northwest of Lookout mine, Little River bed (1,600 feet east of drift mouth, east	Same (2,800 tett). Same (2,800 tett). 3, 22-inch cut).	Same (lump coal, over 11-inch perforated screen).	ірано.	Burley, 25 miles from; on Goose Creek, Worthington mine, 50-inch cut.

	491	491		491	491		492	492		493	493		404	494		
	332	332	335	332	3222	335	332	332		290	290	290	13	20	12	10
	11, 290 12, 776 14, 166		10, 733 12, 107 14, 203	14, 951 10, 937 12, C34	76, 13	10,958 12,373 14,076	14, 700	10, 726 12, C29 14, 247			11,990	11,727 12,789 14,450	14, 639	12,114	14, 564 11, 585 12, 676	14, 477 12, 064 13, 131 14, 492
	6,272 7,038 7,870		5, 063 6, 726 7, 924	8,306 6,076 7,019	1,001	6,088 6,874 7,820	o, 195	5,959 7,016 7,915			6,661	6,515 7,105 8,028	8, 133	6, 730	8,091 6,436 7,042	8, 043 6, 702 7, 295 8, 051
	6.7	7.6	5.9	10.1	9.6	7.4	4.7	\$		5.3	5.2	4.6	1.2	1.1	က က	3.6
			18.02 8.95 10.53	11.25		17.88 8.71 9.90	00°01				. f 6 . 0 0 . 1 0 . 0 0 . 0 0 . 0 0	15.48 8.82 9.91			16.23 9.39	10.73 17.21 10.89 12.02
	0 1 0 0 1 0 0 1 0 0 0 0		1.05	1.49		1.02	1.46				1.47	1.61	1.86		1.36	1.33
	· · · · · · · · · · · · · · · · · · ·		57.36 64.70 76.23			60.06 67.82 77.15	92.34					65.83 71.80 81.12	82.64		64.93	81. 15 66. 44 72. 31 79. 80
			5.41 5.51	5.89		5.29						5.18 4.65 5.24	5.35			5.23 5.23 5.22 5.23
	3.41	4.56	6.33 6.33	3.35	96.4	. 4. 7. 9. 8. 8. 8. 9. 14. 8. 8. 8. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.	2.63	1.24		1.06	1111	1111	1.09	1.29	1.55	1.19 1.23 1.36
	9.80	9.28	13.40	9.18	9.00	10.71	9,63	9.65		7.94	8.12	10.48	8.60 9.47	8.23		8. 63 9. 39
			45.83 54.00	44.37 51.26		43.92 49.00 56.42		60.84 60.84		49.74	48.87 53.97	49.56 54.05 61.02				58. 52 48. 79 53. 10 58. 60
			34. 62 39. 05 46. 00			33.93 38.31 43.58		29, 20 29, 48 34, 71 39, 16				31. 65 34. 52 38. 98				41.48 31.46 37.51 41.40
		12.15	11.35		12.73	11. 44	14.45	15.06		10.28	9,46	8.31	9.15	8.59	8.61	8.12
	c1 co		o ⊶ c3 co ·	4	9-100 m		4-01:	2-0100		03 0	21010	0-00	4-01	n 01	100	0 H C C C
	4	4	O	4	4	ပ	*	4		¥	4	0	4	٧	C	Ö
	2856	2857	2991	2854	2855	2972	4384	4385		1695	1694	1786	477D	478D	495D	4860
ILLINOIS.	Germantown, half mile east of, Southern No. 10 mine, No. 6 bed (2,100 feet north of shaft, back north entry. 4-foot 73-fnot, cut).	Same (2,200 feet northwest of shaft, west entry 6, 4½-foot cut).	Same (lump, over 13-inch screen)	New Baden, Southern No. 9 mine, No. 6 bed (400 foet northwest of shaft, north entry 1 off west en-	Same (600 feet northeast of shaft, room 4, east entry 1 of north entry 1, 6-foot 73-inch cut).	Same (lump, over 5½-inch bar screen)	Trenton, South Trenton mine, Belleville, No. 6 bed (1,800 feet west of shaft, room 5, south eatry	Son east entry 10, 3-100t 5;-mon cut). Same (2,000 feet northwest of shaft, room 1, north entry 7 off west entry 5, 4-foot 114-inch cut).	FRANKLIN COUNTY.	Benton, Benton mine, No. 6 bed, main entry (80 feet south of shait, 9-foot 2-inch cut.)	Same (100 feet north of shaft, cut 9 feet 114 inches).	Same (egg, through 6-inch screen and over 14-inch screen).	Sesser, Keller mine, No. 6 bed (980 feet northwest of shaft, 63-foot cut).	Same (1,220 feet north of shaft, 6½-foot cut)	Same (1½-inch screenings)	Same (run of mine)

Table of chemical analyses—Continued.

Reference.	Page of this bulletin.	494	404
1 .	Bul- letin No.	580 68 53 53 53 59 58 58 58 58 58 58 58 58 58 58 58 58 58	
Calorific value.	British thermal units.	13441344     34444344       361444344     36844       362465     36844       368666     36866       368666     368	12, 587 14, 227 11, 961 13, 565 14, 452
Calorif	Calo- ries.	80000000000000000000000000000000000000	6,993 6,994 6,645 7,535 8,029
	Air- dry- ing loss.	6 1 2 7 1 2 3 4 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
	Oxy- gen.	5 9 6 5 7 9 9 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	10.88 10.35 10.35
e e	Nitro- gen.	\$8848884454988 88444588 \$884888445444444444444444444444	11:23
Ultimate.	Car-	88888 88888488888888888888888888888888	20.53 80.51 82.01 82.01
	Hy- dro- gen.	64446464664444444444444444444444444444	44444 817444 99
	Sul-	243.1	35.54.65.55
	Ash.	11. 12. 14. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15	11.53 11.53 5.42 6.16
nate.	Fixed car-	6889 6889 6889 6889 6889 6889 6889 6889	66.55.05 66.54 66.44 66.54 66.54
Proximate.	Volatile mat-	88888888	32.97 37.26 27.66 31.37
	Mois-	9. 50	11.82
	Con- di- tion.		101010
Sample.	Kind.	0 4 4 4 0 0 0 0	> 4
62	Lab- ora- tory No.	1648 1871 1872 1926 1926 2020 3447 3447	5214
	Locality, bed, etc.	ILLINOIS—Continued.  FRANKLIN COUNTY—continued.  West Frankfort, West Frankfort mine, No. 6 bed (680 feet northwest of shaft, room 5, west entry 1, north side, 94fg-inch cut).  Same (1,600 feet southwest of shaft, room 5, west entry 3, south side, 94fg-inch cut).  Same (1,500 feet southwest of shaft, room 5, west entry 3, south side, 94fg-inch cut).  Same (1,500 feet southwest of shaft, room 6, west ontry 3, 11-foot 2-inch cut).  Same (over 4-inch perforated screen).  Same (run of mine).  Same (run of mine).	Same (1,600 feet south and 475 feet east of opening, east entry 6 off right entry 1, south side, 914-inch cut).

	ANAL.	ISES OF COMES.			
494	495	496	497	497	498
-		28 8 28 8 28 8 28 8 28 8 28 8 28 8 28	88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		95 28 8 28 28 28 28 28 28 28 28 28 28 28 2
11, 410 12, 893 14, 377	10, 620 12, 593 14, 249	10, 985 112, 755 114, 486 11, 399 13, 012 14, 486 15, 034	10, 406 12, 209 14, 323 10, 337 12, 260 14, 312 14, 836	11,149 12,422 14,670	11, 162 12, 872 14, 344
6,339 1 7,163 1 7,987 1	5,900 6,995 7,916	6, 103 7, 086 8, 049 6, 333 6, 333 8, 048 8, 352	5,781 6,783 7,957 6,811 7,951 8,242	6, 194 6, 901 8, 150	6, 201 7, 151 7, 969
6.4	8.1	11.0	11.3	7.6	7.7
18.51		19.02 9.15 10.18 10.71	21. 02 8. 40 9. 80 10. 31		
1.22		1.00	1.06 1.26 1.47 1.54		1.05
82.39 82.39		61.29 69.96 77.89 81.97	56.76 57.33 78.58 82.59		
5.28		5. 85 5. 98 5. 98	10.4 10.00 1		
9.089.	3. 55 3. 55 3. 55 3. 55	3. 3. 44 4. 5. 5. 5. 5. 6 4. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.	8. 4. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	23.3.3.12 33.12 33.15 50.50 51.50 51.50	4.37 4.37 4.37
9.13	10.36 12.23 9.80 11.61	10.31 11.97 7.58 8.98 3.91 10.18	12. 58 14. 76 12. 35 14. 62 12. 09 14. 34	13.76 15.33 15.91 17.65	8.90 10.26 9.20 10.86
52.67 59.51 66.36	41.46 48.93 55.75 43.10 57.82	38. 56 50.86 50.86 41. 77 44. 77 44. 89 41. 80 47. 71 53. 12	39. 75 46. 64 46. 64 54. 72 39. 86 39. 82 47. 22 47. 22 55. 13	40.11 44.69 52.78 38.22 42.42 51.51	46. 99 46. 99 52. 36 39. 34 46. 43
26.70 30.17 33.64	32.91 38.84 44.25 31.43 37.28	37. 26 43. 26 49. 114 36. 21 36. 21 36. 88 42. 11 46. 88	33. 60 44. 27 44. 87 44. 87	35. 88 39. 98 47. 22 35. 99 48. 49	37. 07 42. 75 47. 64 36. 19 42. 71 47. 91
11.50	15.27	13.87	15.52	10.25	1 13.29 3 1 15.27 3 15.27
-0100			-aum-aum-aum-	400400	
4	4 4	4 4 0	4 4 0	4 4	4 4
5237	4345	1741	2882	3044	1625
Same (1,000 feet north and 550 feet west of opening, west entry 2 our right entry 1, north face, 89-inch cut).	St. Dav	LaSalle	LOGAN COUNTY.  Lincoln, Latham mine, No. 5 (583-inch) bed (1,500 feet southeast of shaft, room 11, stub entry 3, 573-inch cub, color color color shaft, room 1, main entry 3, main cross entry 1, northwest side).  Same (run of mine).	M'LEAN COUNTY.  Chenoa, Chenoa mine (300 feet northeast of shaft, room 1, entry 1 east off north, 43-inch cut).  Same (250 feet northwest of shaft, room 6, entry 4 west off north, 35-ioot cut).	Staunton, No. 2 mine, No. 6 bed (room 11 off north entry 1, 71‡-inch cut).  Same (main air course, 82‡-inch cut)
	99500°—E	Bull. 22—13——7			

Table of chemical analyses—Continued.

	Ω.	Sample.			Proximate.	mate.			D	Ultimate				Calorif	Calorific value.		Reference.	
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul- phur.	Hy- dro- gen.	Car-	Nitro-	Oxy-	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.	
																	1	
MACOUFIN COUNTY—continued. Staunton, No. 2 mine—Continued. Same (run of mine).	1635	Ö		13.54	35.69 41.28 47.13	40.03 46.30 52.87	10.74	4.4.6 32 32	5.71 4.87 5.56	58.69 67.88 77.51	0.95	19.88 9.07	9.0	6, 904 6, 944 929	10,807	290		
Same (lump)	1639	Ö	4-00	13.72	36.24 42.00 47.70	39.72 46.04 52.30	10.32	3.96 5.21	5.74 5.89 5.56	81.87 58.95 77.61	1.33	20.03	10.1	8,248 6,039 7,999	14,846 10,870 12,598 14,310	290	:	
Same (slack)	4247	C		15.25		40.83	15.35	3.81	4.5.22 4.16	82.88 53.95 66.53	1.36		13.3	8,264 5,439 6,439	14,875	332		
No. 1 mine, No. 6 bed, uninspected shipment of screenings, through 13-inch screen.  Madison county.	2731	Ö	1 1 1	14.68	41.16 31.32 36.71 43.72	58.84 40.32 47.26 56.28	13.68	5.43 5.55 4.25 4.25 4.25 4.25 4.25 4.25 4.25	5.28	77.74 55.21 64.71 77.05	1.18	20.50 20.82 10.82 	12.4	7,837 5,585 6,546 7,796	14,105 10,053 11,782 14,031	332		
Collinsville, No. 1 mine, No. 6 bed, No. 5 slack, washed, 18 tons.	1556	Ö		17.02	30.60	35.59 42.89	16.79	3.29	4.35	50.77			12.5	5,177 6,239	9,319	261		
Near; Lumaghi No. 2 mine, No. 6 bed (room 17, north entry, 84-foot cut).	1608A	4	n – 01	12.27	46.23 42.23 42.43	53.77 39.16 44.63	11.35	4.97 5.31	30	76. 70			5.9	7,821	14,078	290	498	
Same (room 14, south entry, 95-inch cut)	1609	4		11.87	48.74 136.74 11.50	888	11.58	6. 10			1.02		5.0	5,982	10,768	8 6 2	864	
Same (nut, over 1-inch screen)	1191	Ö		11.46	47.78 34.98 39.51	36.22 36.25 40.94 80.94	17.31	6.21	272	54.56		8.53	5.0	6,291	11,067	28.68		
Same (run of mine)	1780	Ö		10.83	7,75	39.75 44.58 52.31	13.18	5.08 5.08 96 86	20.00.4.00.00 20.00.4.00.00 20.00.4.00.00 20.00.00.00.00	81.64 58.59 65.71 77.10	36.1.1.1.30	11.30 17.36 10.18		6,000 8,7,000 8,7,000 8,000 8,000 8,000 8,000	14,735 10,816 12,130 14,234	290		

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9,713 10,876 14,031 10,949 12,596 14,243	10,510 12,126 14,013 14,639	11,450 14,049 10,892 12,703	11,236 12,868 14,305	11, 488 14, 080 14, 706	10, 667 12, 186 14, 229 14, 859	12,215	12,580		10, 192 11, 718 14, 069 14, 711	
5,396 6,042 7,795 6,983 7,913	6,839 6,748 8,7385	6,361 7,805 7,057	6,242 7,149 7,947	6,382 7,822 8,170	5,926 6,770 8,255	6,786 8,248 8,248	6,989	5, 897 7,854		5,7,7,
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20.09 22.49 10.06 11.57 11.29 12.95		15.59 18.49 18.49 11.01		16.00	14.35	51.4	2.11	13.01	14.53	8.74
36.14 52.21 52.21 42.02 48.34 40.25 46.15	53.01 40.65 46.98 54.20	37.45 54.41 54.49 40.70 47.57	63.46 41.15 47.13 52.38	46.17 56.60		41.66 47.48 55.24		24.83.82.82 23.82.82.82 23.82.82.82		46.49 54.75 59.99
23.08 24.7.04 25.09 25.67 26.09	46.90 34.35 45.80	31, 28 37, 10 46, 51 35, 52 41, 42	45.54 42.84 47.62	30.78 35.42 43.40		33.76 38.47 44.76	34.64 40.05 45.38	39.16 39.04 35.04 40.47 40.48	32. 65 37. 64 45. 07	31.00 36.51 40.01
13.07	13.47	15.68	12. 69	13.10	12.47	12.25		13.83	13.03	15.09
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2774	2819	2803	3913	3963	3968	3980	2772	2905	2896	1341
Collinsville, No. 2 mine, car of slack.  Donkville, No. 1 mine, No. 6 bed (3,800 feet northeast of shaft, north entry 5 off east-entry 6, 684-ineh cut).  Same (3,000 feet northwest of shaft, north entry	5 off west entry 6, 405-uch cut). Same (lump, over 5-luch screen)	Same (slack, through 2-inch sereen)	Same (1,200 feet northwest of shaft, back west entry, 704-inch cut).	Same (screenings, through 2-inch screen)	Same (run of mine, sample 1)	Same (run of mine, sample 2)	Maryville, No. 2 mine, No. 6 bed (3,000 feet south of shaft, main south entry, 97-inch cut).	Same (2,560 feet north of shaft, east entry 9, 954-inch eut).  Same (lump, over 4-inch sereen)	Same (nut, pea, and slack, through 2-inch screen).	Troy, 1 mile west of; No. 3 mine, No. 6 bed (room 15 off west entry 5, north side of shaft, 62-inch cut).

Table of chemical analyses—Continued.

	02	Sample.			Proxi	Proximate.				Ultimate.	6			Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy- gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.		Page of this bulletin.
ILLINOIS—Continued.  MADISON COUNTY—continued. Same (room 16 off east entry 5, south side of shaft, 60½-inch cut).  Same (lump, over 2-inch screen, 22 tons)  Same (1,500 feet southeast of shaft, room 22 off east entry 5, south side, 54-inch cut).  Same (800 feet northwest of shaft, room 26 off west entry 3, north side, 54-inch cut).  Same (lump, over 24-inch screen, sample 1)  Same (lump, over 24-inch screen, sample 2)	1342 1417 2770 2771 2852 2920	40 4 4 0 0	H030H0304H030H03004H030	14.42 12.91 15.23 17.79 15.54	18.30 19.30 10.30 10.30 10.30 10.30 10.30 10.30 10.30 10.30 10.30	57.55 5.55 5.55 5.55 5.55 5.55 5.55 5.5	8.81 11.029 10.29 10.65 11.09 11.09 12.94 12.94	1.52 1.123 1.123 1.123 1.123 1.133 1	6.4.6.6.6.6.4.6.6.6.6.6.6.6.6.6.6.6.6.6	80.50 80.57 80.50 80.50 80.50 80.50 80.50 80.50 80.50	1.1.1.1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	10.93 10.93 10.93 10.93 12.24	3.0 10.5 10.4 8.2	6, 0002 7, 9337 8, 048 8, 048	10 804 112 406 14, 319 14, 319 12, 359 14, 396 14, 386 14, 486	322 328 328 48 48 58 58 58 58 58 58 58 58 58 58 58 58 58	202 203
Centralla, South mine, No. 6 bed (3,000 feet southeast of shalf, east entry 16, 84-inch cut).  Same (4,500 feet southwest of shaft, south entry 14, 5-foot 44-inch cut).  Same (lump, over 6-inch screen)	1725	< < 0	-00-00-00-00-	11.88	37.43 35.84 40.67 34.76 34.76 45.25 45.25	29. 79 24. 34 25. 75 25. 75 25. 70 26. 71 26. 71	12. 53 13. 96 8. 83 10. 02 14. 69	6.4.4.6.9.4.4.4.7.0.9.8.7.0.9.8.7.0.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9	52.25	59. 64 66. 23 77. 63 81. 75	1.04	16.97 9.03 10.59 11.15		6, 154 6, 857 7, 969 6, 089 6, 762 6, 762 8, 228	11, 077 12, 343 14, 344 10, 960 12, 172 14, 267 14, 267	290 290 290 290 290	503

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6,031 7,933 7,933 7,191	5,591 6,534 7,734 8,057	6,499 7,746 8,746 8,085	5,841 6,729 7,864 8,223	6,235 7,019 7,942		6,125 6,787 7,950 8,270				8,731 8,731 8,263	4 4
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	21.52 10.15 12.02 12.72	18.37 8.82 10.51	10.8.00 10.00 10.00 11.0			16.64 10.34 10.93	17.58			21.9.55 8.2.9.58 8.2.9.88	
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	54.59 63.79 75.51	56.94	57.25 65.96 77.08 82.02			59.72 66.17 77.51 81.86	50.22 76.09 26.04	70.10		64.72 64.72 76.08	
	5.38	2.4.5.	5.79			5. 49 5. 49 8. 69	24.00 20.00	5.0		24.70.0 24.70.0 24.70.0	00 : : :
84464464 84864464	5.682	5.87	4. 17 5. 15 6. 02	4.4.2 22.52	4.04	5.06 4.10 5.32	4.55 6.10	4.62	8.4.4 8.2.8	4.38 5.83 8.85 8.85	3.22
11. 08 12. 72 7. 87 9. 25 10. 91 12. 68	13.28	14.18	12.5	10.32	10.07	13. 20	22. 44 25. 51	.01	10.	13, 19	10.29
25.25 25.55 25.55 25.55 25.94 27.22 27.22 27.22 27.22 27.22	54. 85 42. 81 50. 03 59. 22	43.90 49.85 59.42	39.94 46.01 53.77	39, 20	39.54 43.96	49.51 43.84 51.35	33.67 38.27 51.37	6.55	37.05 41.12 46.72	52.44.20	41.75 48.08 54.54
33. 93 39. 45 39. 45 39. 45	45, 15 29, 48 34, 45 40, 78	29.99 34.05 40.58	34.33 39.55 46.23	39.31 44.25	44.84	50, 49 37, 48 41, 53 48, 65	31.86 36.22 48.63	39.60	46.89 53.28	35.70 40.43 47.52	34. 79 40. 07 45. 46
12.90	14.43	11.93	13. 20	11.17	10.06	9.75	12.03	10.73	9.88	11.69	13.17
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1449	1557	1703	1627	1095	1096	1261	1152	3910	3912	4364	4250
MONTGOMERY COUNTY.  Coffeen, Coffeen mine, No. 6 bod (1,500 feet northwest of shaft, rightentry 2, 89-inch cut).  Same (room 21 off left entry 6, 90-inch cut)  Same (room 18 off right entry 4, 99-inch cut)	Same (run of mine, 17 tons)	Same (run of mine)	Paisley, Paisley minc, nut coal	ST. CLAIR COUNTY.  O'Fallon, 53 miles southwest of, No. 1 mine, Belleville, No. 6 bed (1,200 feet north of shaft, 733-inch	Same (1,200 feet south of shaft, 804-inch cut)	Same (lump and nut, over 1-inch screen, 15 tons).	Same (slack, 14 tons)	Ghiloh, No. 8 mine, No. 6 bed (900 feet southwest of shaft, cross cut off west entry 1, south side,	794-inch cut), Same (800 feet northeast of shaft, east entry 3, 6546-inch cut.)	Same (nut coal, through 3-inch and over 2-inch shaking screen).	Worden, Worden mine, No. 6 bed (900 feet west and 850 feet south of shaft, 64-foot cut).

Table of chemical analyses—Continued.

Reference.	Bul- of this No. bulle- tin.	332 332 332	332 332 332 332 336 507 507	332		809 9
Calorifie value.	British thermal units.	10,858 12,681 14,125 10,393 11,959 14,112	12,686 13,716 14,924	12, 418 13, 469 14, 818 15, 129 11, 572 12, 764	12,075 12,075 13,610 14,756	12,643
Calorifi	Calo- ries.	6,032 7,045 7,847 6,774 6,644 8,133	7,048 7,620 8,291	6,899 8,232 8,405 6,429 7,091	8,7,7,8, 1,5,10,2,0 1,98,10,2,0	7,024
	Air-dry- ing loss.	9.4	4 70 4 W	5.8	6	3,6
	Oxy-gen.	19.31 8.82 10.41		15.11 9.74 10.03 16.09	12.28 8.28 8.88 8.88 8.88 8.88	13, 20
45	Nitro-gen.	1.03 1.19 1.40 1.47		11.25	1.1.1.1.25	1.30
Ultimate.	Car-	657.31 77.82 81.88		67. 40 67. 40 82. 75 62. 85 69. 32		
Ω	Hy- dro- gen.	5. 44 5. 44 5. 69		2.4.7.7.7.4.7 2.8.8.2.2.7.4.7 2.1.2.2.2.2.3	5.5.5.4.5. 5.5.2.8.8.	5.16
	Sul-	2.6.6.6.4.4. 2.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.	1.56 1.58 1.71 1.88	22.23 23.23 23.25 23.76 23.04	1.92	2.87
	Ash.	8.75 10.22 13.25 16.25	7.15 7.73 7.73 8.09 8.09 7.11 8.57	8.38 9.09 11.89 13.11		25
nate.	Fixed car-	50.16 50.16 55.87 41.49 56.33	51. 45 55. 66 55. 66 55. 66 56. 44 61. 41 59. 11 63. 64 57. 42	62.80 50.27 54.53 59.98 47.86 52.79	54.32	51.3
l'roximate.	Vola- tile mat- ter.	33.92 33.92 33.16 37.01 43.67	33. 33. 33. 33. 33. 34. 01. 01. 01. 01. 01. 01. 01. 01. 01. 01	37. 20 33. 54 40. 02 30. 92 34. 10	32. 37 34. 44 37. 34	34, 41
	Mois- ture.	14.38	7.55	7.81	6.01	5.56
	Con- di- tion.	1001004	накнакнакна	ω⊣ <b>αω</b> 4⊣αα	04-0100	-
Sample.	Kind.	4 0	4 4 4 4	ن ن		<
<u> </u>	Lab- ora- tory No.	4251	4414 7421 7420	4622	7501	7502
	Locality, bed, etc.	ILLINOIS—Continued.  ST. CLAIR COUNTY—continued.  Worden mine—Continued.  Same (1,600 feet north and 300 feet west of shaft, 864-inch cut).  Same (screenings through 14-inch screen)	Harisburg, No. 9 mine, No. 5 bed (2,000 feet southwest of shaft, room 25 off west entry 4, south side, 85g-inch cut).  Same (1,000 feet north and 200 feet east of shaft, east entry 4, north side, 81g-inch cut).  Same, 1,300 feet northeast of shaft in room 3, off cast entry 6.  Same, 3,000 feet southwest of shaft, off west entry 4.	Same (run of mine)	No. 4 mine, No. 5 bed, 744 inches (south entry 8 off main east entry).	Same (north entry 2 off main east right entry)

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6,115 7,134 7,887	6,574 6,574 7,863 7,899 7,894	5, 976 6, 851 7, 921 8, 251	6,576 7,170 8,131	6,312 6,876 8,005 8,271	6,148 7,035 7,996 6,011 7,098	8,099 7,121 8,121 8,030	8,138 8,202 8,138 8,202 8,138
10.2	10.8	8.0	5.2	3.6	9.0	13.3	4. 8 4. 8
	9.06	18.74 8.47 9.81 10.36		14.86 8.25 9.60	20.98.55 20.68 35.88 35.88	9.53 21.82 9.17	14. 41 8. 14 9. 21 9. 43
	1.08	1.25	1.16	1.10	1.06	1.39	1.32 1.43 1.62 1.60
	64. 16 64. 16 76. 73 81. 43	58.74 67.34 77.85 82.40		62.52 68.10 79.29 82.95	62.15 71.12 80.83 59.88	80.68 59.66 70.91	66. 55 72. 15 81. 52 83. 54
	5. 55	5.49		5.09	4.54 5.16 4.54 5.61 62	5.27	5.14 5.24 5.37
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		10. 66 12. 46 11. 78 13. 50	10.83		10.50 12.02 10.47		9.26 10.10 10.61 11.50
40.36 47.09 47.90 54.12	37.82 45.03 53.85 40.89 54.64	40. 10 46. 87 46. 87 40. 77 46. 74 54. 03		57.00 50.75 50.00	46.81 53.56 60.88 45.29	61.02 46.42 55.17	52. 21 48. 69 53. 10 59. 07 54. 42 61. 49
37.17 43.37 44.95 34.85 40.61	32. 41 38. 58 46. 15 33. 96 45. 36	34, 79 40, 67 46, 46 34, 68 39, 76 45, 97	31.19 34.01 34.27	37. 42 43. 00 32. 26 35. 14 40. 91	30.08 34.42 39.12 28.93	33.73 33.19 33.19	37.79 33.75 36.80 40.93 31.44 34.08
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2897	3052	1705	1683	1762	3907	4201	1634
Auburn, Auburn-Alton mine, No. 6 bed (2,000 feet inch cut).  Same (1,400 feet south entry 7, 6-foot 6g-feet of 6,400 feet south of shaft, south entry 1, 6-foot 8g-inch cut).	Same (run of mine)  Springfield, east side of: No. 2 mine, No. 5 bed (1 mile southeast of shaft, room 30 off south entry 21,	Same (lump, over 1½-inch bar screen)	WILITAMSON COUNTY.  Bush, Bush No. 1 mine, No. 6 bed (1,000 feet northeast of shaft, room 10 off east entry 1 60-inch cut).  Same (1,000 feet northwest of shaft, north entry	1, 75-inch cut), Same (run of mine)	Same (No. 5 washed, uninspected, sample 1) Same (No. 5 washed, uninspected, sample 2)	Same (No. 5 washed, uninspected, sample 3)	Curterville, near; Daw's shaft, Big Muddy bed (north entry off straight west heading, cut 8 feet 104 inches).  Same (mixed screenings and egg coal)

Table of chemical analyses-Continued.

48.23 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6.501	64.29 1.29 15.06 5.8 6,501 70.54 1.42 7.88 7,133 80.89 1.62 9.03 8.162 9.03	25 48.23 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6,501 2.9 65.82 2.2 12.79 2.70 4.67 70.54 1.42 7.88 5.89 15.06 5.8 8,189 15.06 5.8 1.89 15.06 5.8 1.89 15.06 5.8 1.89 15.06 5.8 1.89 15.06 5.8 1.89 15.8	46.23 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6,501 52.00 12.79 2.70 4.29 1.29 15.06 5.8 6,501 52.00 12.79 2.70 5.8 5.00 1.00 5.8 1.00 5.00 1.00 5.8 1.00 5.00 1.00 5.8 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 1.00 5.00 5	23 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6,501 92 12.79 2.70 4.67 70.54 1.42 7.88 93 7.60 1.65 5.88 83.47 1.68 9.32 13 8.36 11.65 5.88 83.47 1.68 9.32 13 8.36 11.67 5.88 11.47 15.83 6.4 6,798 13 8.36 11.97 5.28 81.38 1.60 9.77 13 1.97 5.28 81.38 1.60 9.77 13 2.18 4.99 7.2.15 1.83 8.15 13 2.48 4.96 7.2.15 1.73 9.10 14 1.52 5.46 5.98 81.38 1.72 9.8 1.47 1.62 5.44 6.78 1.74 1.62 5.44 1.6731	23 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6,501 92 12.79 2.70 4.67 70.54 1.29 15.06 5.8 6,501 93 7.66 1.65 5.38 63.49 1.68 9.32 8,189 33 7.66 1.65 5.38 63.49 1.47 1.68 9.32 34 8.38 11.97 5.28 81.38 1.60 9.77 8,139 90 10.44 2.01 5.18 66.64 1.41 14.32 4.8 6,633 90 10.44 2.01 5.18 66.64 1.41 16.25 4.1 6,73 90 1.49 67.86 1.47 16.25 4.1 6,73 90 4.49 76.37 1.38 9.83 7,730 90 8.94 76.37 1.38 9.83 7,730	22 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6.501 11 66 2.24 64.29 1.29 15.06 5.8 6.501 11 65 5.8 6.501 11 65 5.8 6.501 11 65 5.8 6.501 11 65 5.8 6.50 1.29 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20	22 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6,501 6.8 6.8 6.8 1.29 1.29 15.06 5.8 6,501 6.8 6.8 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29	23 11.66 5.24 64.29 1.29 15.06 5.8 6,501 6.8 1.29 1.2.70 2.70 5.46 1.29 1.29 15.06 5.8 6,501 6.8 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29	22 11.66 2.46 5.24 64.29 1.29 15.06 5.8 6,501 83 7.66 1.65 5.38 83.47 1.62 9.78 83 7.66 1.65 5.38 83.47 1.62 9.73 83 7.66 1.65 5.38 83.47 1.63 9.77 83 1.97 5.28 83.88 1.87 1.87 8.94 83 1.97 5.28 83.88 1.87 1.87 8.94 85 1.04 2.18 4.09 7.21 1.31 1.82 4.8 6,733 85 1.04 2.18 4.09 7.21 1.83 1.72 9.20 86 7.44 1.62 5.48 6.04 1.41 1.62 4.1 6,731 87 8.28 1.09 5.10 6.30 1.14 1.25 6.75 88 1.00 5.10 6.30 1.14 1.62 6.75 89 1.10 8.29 6.14 6.50 1.14 1.62 6.75 89 1.10 8.29 5.14 6.50 1.13 1.36 8.6 6,73 89 1.10 8.29 5.17 1.38 9.83 80 1.10 8.29 5.17 1.38 9.83 80 1.10 8.20 5.17 1.38 9.83 80 1.10 8.20 5.17 1.38 9.83 80 1.10 8.20 5.17 1.38 9.83 80 1.10 8.20 6.11 1.38 7.75 5.7 6.09 80 1.10 8.10 7.21 9.11 1.30 8.6 6.75 80 1.10 8.10 8.10 8.10 1.30 8.6 6.70 80 1.10 8.10 8.10 8.10 8.10 8.10 8.10 8.	48.23 11.66 2.46 5.24 6.4.29 1.29 15.06 5.8 6.501 6.06 6.06 6.06 6.06 6.06 6.06 6.06 6.
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48.23 11.66 2.46	25 48.23 11.06 2.46 29 52.92 12.79 2.70 32 60.68	29 52.92 11.06 2.46 32 60.68 2.70 2.70 40 51.33 7.66 11.85 69 61.71 8.38 11.81	48.23 11.66 2.46 52.92 12.79 2.70 60.68 3.10 56.17 8.38 1.81 66.31	88 12.79 2.24 1.85 1.86 1.91 1.91 1.91 1.92 1.93 1.94 1.95 1.95 1.95 1.95 1.95 1.95 1.95 1.95	23 11 66 2 46 6 12 10 10 18 11 18 11 18 11 18 11 18 11 18 11 19 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 11 18 18	22 11.66 23 12.79 2.246 24 12.79 2.216 25 16 10.44 1.65 25 16 10.44 1.65 25 16 16 16 16 16 16 16 16 16 16 16 16 16	23 11.66 2.46 2.74 2.24 2.24 2.24 2.24 2.24 2.24 2.24	23 11 66 2.46 31 12.79 2.16 31 10.64 1.99 32 11.03 2.99 33 11.04 2.01 31.04 2.01 31.04 2.01 31.05 2.46 32.06 8.94 1.99 32.07 2.73 1.95 33.05 33.05 34.05 35.	22 11.66 23 12.79 24 12.79 25 15 16.65 26 16.79 27 17 18.79 28 18 18.79 28 18 18.79 28 18 18.79 29 11.03 20 10.03 20 10.03 2	48. 23 11. 66 2. 46 60. 88 11. 88 11. 88 11. 88 11. 89 11.
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		. 1718	. 1718	1653						
		Same (sizes 4 and 5 mixed, washed)	Same (sizes 4 and 5 mixed, washed)		Same (egg coal).  Same (egg coal).  Same mine, No. 6 bed (500 feet north and 2,900 feet west of shaft, room 5 off north entry 12 on west entry 83.5, mine, No. 6 bed (500 feet north and 2,900 feet west of Shaft, noon 5 off north entry 12 on west entry 83.5, mine, No. 6 bed (500 feet north and 2,900 feet west of shaft, noon 5 off north entry 12	Same (sizes 4 and 5 mixed, washed)	Same (sizes 4 and 5 mixe  Same (egg coal)  Same mine, No. 6 bed (500 feet west of shaft, room on west entry, 554g-incl  Same (2,200 feet north a shaft, room 13 off we leuty 4, 39g-incl off we leuty 4, 39g-incl off we leuty 4, 39g-incl out).  No. 7 mine, No. 6 bed (25 shaft, room 17 off sout	Same (sizes 4 and 5 mixe  Same (egg coal)	Same (sizes 4 and 5 mixed, washed)  Same  Same  Same  14 miles northeast of, sec. 35, T. 8 S., R. 1 E., Nome, No. 6 bed (700 feet north and 2,90 feet west of shift, room 5 of north entry 1 shift, room 3 of morth entry 1 shift, room 13 off west entry 2 off north entry 4, 934-inch cut). Same (2,200 feet west of shift, room 17 off south entry 2 off north entry 4, 934-inch cut).  Same (3,400 feet northeast of shift, room 14 of shift, room 17 off south entry 6, west side 854-inch cut).  Same (3,400 feet northeast of shift, room 14 of north entry 5, east side, 8-foot 94-inch cut).	Same (sizes 4 and 5 mixe  Same (egg coal).  Same  Inites northeast of; sec. 35, mine, No. 6 bed (500 fet west of shaft, roon on west entry, \$54\frac{2}{2}\triangle mine, No. 6 bed (200 fet west of shaft, roon on west entry, \$54\frac{2}{2}\triangle mine, No. 6 bed (200 entry 4, 93\frac{2}{2}\triangle min, No. 7 mine, No. 6 bed (2) Shaft, room 13 off were shaft, room 17 off sout Same (2,400 feet northeau north entry 5, east sid Same (1ump and egg, ove

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332	383 ≈ 583 ≈	######################################	332 332 336 337	333		: ::::::::::::::::::::::::::::::::::::
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88,114 88,079 88,079 88,079		6,542 7,150 8,155	6,489 7,669 8,241	5, 291 6,368 8,051 8,220		6, 521 7, 540 8, 263 8, 263 6, 344 6, 344 8, 105 8, 105
3.0		2.7	11.3	13.1	7.0	5.1
16.24 1.0.22 1.0.05 1.4.98 1.9.80 1.9.96		8.17 9.33		21.28 7.53 9.50 9.70		20.34 9.58 10.57
11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	1.41	1.39		1.54		1.42 1.82 1.82 1.83
68.70 68.70 67.45 67.45 82.10 83.35		65.48 71.56 81.63		52.97 63.75 80.60 82.99		63. 53 73. 51 83. 17
5. 19 5. 19 5. 11 5. 19		5.09		5.48 5.48 5.64		5.5.4.5.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.
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8.03 8.81 7.52 8.25 9.98 10.82	7.15	11.28	5.88 6.95 4.85		7.68 8.62 6.82 7.83	7.55 8.73 8.25 9.43
	553.67 558.02 55.88 54.86		46.08 54.45 58.52 46.05		45.90 51.55 56.41 46.98 53.96 58.54	45.38 55.48 46.35 55.74 46.20 55.46 59.03
	34.25 34.25 37.12 37.01		32.66 41.48 33.19	26. 85 32. 31 40. 85	35, 47 39, 83 43, 59 33, 27 41, 46	33.54 42.50 42.50 32.57 41.26 41.26 41.26 40.97
8.88	7.34	8.50	15.38	16.91	10.95	13. 53
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<b>A A</b> O	4 4	Ö	4 4	Ö	4 4	4 4 0
3632	1170	1318	3536	3979	3511	3474
Same (2,250 feet northwest of shaft, 83-inch cut).  Same (west of shaft, 1,800 feet north, 7-foot cut)a.  Same (lump, over 3-inch screen)	Marion, No. 3 mine, No. 6 bed (southwest entry 3, 86-inch cut).  Same (north entry 1, east side, 82-inch cut)	Some (run of mine, 40 tous)	CLAY COUNTY.  CLAY COUNTY.  Brazil, near; 1 mile southwest of Perth, No. 4 mine, Brazil Block bottom bed (800 feet south- east of shaft, 41-inch cut).  Same (600 feet northwest of shaft, 431-inch cut).	Same (sereenings, through 1½-inch bar sereen)	Montgomery, I mile west of; No. 3 mine (west entry 2, south side, 900 feet southwest of shaft).  Same (room 4, north entry 12, 2,000 feet north of shaft).	Canton, 2 miles west of: Black Creek mine, No. 4 bed (2,000 feet southeast of shaft, 563-inch cut).  Same (1,900 feet northeast of shaft, 493-inch cut).  Same (run of mine).

a Sample taken to determine to what extent quantity of coal taken as sample affects the analysis (see U. S. Geol. Survey Bull. 316, p. 516).

Table of chemical analyses-Continued.

Reference.	Page of this bulle-tin.	516	:	517	517	518
1	Bul- letin No.	332 232 332	1332	332 332 332 332 332 332 332 332	335 335 835 835	330
Calorific value.	British thermal units.		11, 218 12, 508 14, 391 14, 985	11, 752 13, 145 14, 492 14, 492 11, 011 11, 011 14, 319 14, 828	11, 930 13, 824 14, 841	11,655
Calorif	Calo- ries.		6,233 6,949 7,995 8,325	6,529 7,303 8,051 8,051 6,117 6,957 7,955 8,238	6,628	6, 475 7, 320 8, 213
	Alr-dry-ing loss.		0.0	6.9	6.7	8.6
	Oxy- gen.		16.58 8.27 9.51 10.06	18.65 10.28		
	Nitro- gen.		1.1.8 4.38 4.4			
Ultimate.	Car-	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	68.00 68.00 78.26 82.75	60.45 68.76 78.61 82.53		
1	Hy- dro- gen.		5.44 5.73 5.74 5.75	5.46 5.46 5.46		
	Sul-	8,8,8,4,4,6,0,0,4,4,6,0,0,0,0,0,0,0,0,0,0,0,0	5.43		22.33.06 22.33.08 22.33.08	5.4.4.5 5.60 5.60
	Ash.	9.21 10.34 11.22 12.68	13.10	8.30 9.28 8.06 9.15 11.02	5.91 6.85 5.07 5.89	9.62 0.88
mate.	Fixed carbon.	42. 02 47. 16 52. 60 40. 49 52. 39	53.42	43.04 48.15 53.08 43.84 44.74 44.42 57.75	55.30 55.30 55.32 55.32 55.32 55.32 55.32	5885
Proximate.	Vola- tile mat- ter.	37.86 42.50 47.40 47.57 41.57	40.48	38. 06 42. 57 46. 92 46. 92 36. 23 37. 48 36. 94 45. 25	35.94 41.64 40.70 40.87	
	Mois- ture.	20.120	10. 00	10.60		11.54
	Con- di- tion.	-00-00-	-01 to 41	нишнишниш4	-00-00	
Sample.	Kind.	4 4 0	>	4 4 0	< <	<
02	Lab- ora- tory No.	3475	1000	3516 3517 3981	3534	1853
	Locality, bed, etc.	INDIANA—Continued.  GREENE COUNTY—continued.  4 miles west of; White Rabbit mine, No. 5 bed (650 feet west of shaft, 7944-inch cut).  Same (500 feet southeast of shaft, 834-inch cut).	KNOX COUNTY.	Bicknell, Linn mine, No. 6 bed (500 feet northeast of shaft, 604-inch cut).  Same (250 feet northwest of shaft, 71-inch cut).  Same (run of mine)	Diamond, \$\frac{2}{3}\$ mile northwest of; No. 9 mine, Brazil in look upper bed (1,200 feet southwest of shaft, 565-inch cut).	Rosedale, Rosedale mine, No. 3 bed (3,000 feet southeast of shaft, south entry 16, 6143-inch cut).

	ANADISES	Or COLLEG III		
e0 10	519	519	520	250
280 336	332 332 332 332 333 332 332 332 332 332	332 332 332 332 332 332 332 332 332 332	332	86 88 88 88 88 88 88 88 88 88 88 88 88 8
11, 767 13, 180 14, 578 15, 102	11, 801 13, 545 14, 573 14, 573 12, 031	14, 692 11, 909 11, 952 13, 599 14, 746 14, 746 14, 567	11,266 12,598 14,485 15,034 15,034 12,181	
8,390 8,390 8,390	6,556 7,525 8,096 6,684 7,521	8,7,6,0 6,192 6,192 8,192 8,192 8,093	6, 259 8, 047 8, 352 6, 767 7, 534	
9.6	5.3	69 89 69 10 10 10	6.4	8 3 6 2 8 6
17. 10 8. 48 9. 37 9. 85		9.9.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	16.80 8.27 9.51 10.02	14.70 7.45 8.28 8.28 8.69 17.10 9.08
1.16	2.5	4.84.64	1.50	1.20 1.32 1.54 1.13 1.127 1.428
63.48 71.10 78.65 82.58		25.53.25 24.472.68	82.33 78.57 82.57 82.57	83. 18 83. 18
6.07		8887.9 %	7.4.7.7. 2.4.2.7.	2.0.0.0.4.0.0 0.0.0.4.0.0 0.0.0.4.0.0 0.0.0.4.0.0
4. 75 5. 93 7. 93 7. 83 7. 75	5.8514.95.95 5.8514.95.95	99 4288847888	6.6.4.4.6.6.4.4.6.6.4.4.6.6.4.4.6.6.4.4.6.6.4.4.6.4.4.6.4.4.6.4.4.6.4.4.6.4.4.6.4.4.6.4	28.6.6.6.4.4.6.4.4. 28.2.2.4.4.6.4.4. 28.2.2.4.4.6.4.4.
8.32 9.48 8.57 9.60	6.14 6.02 6.99 6.98		13.05 13.03 14.01 14.01 9.04	7.97 8.85 8.85 9.21 10.11 10.52
40.80 46.50 51.37 41.42 46.39 51.32	46.27 53.11 67.14 45.91 57.27 57.27	42724488488		62.44 44.18 49.18 653.86 653.86 67.61 67.61 67.87 67.87 67.87 67.87
38.62 44.02 45.63 39.29 44.01 48.68	34. 24. 24. 24. 24. 24. 24. 24. 24. 24. 2			47.56 47.86 46.20 47.86 47.86 47.98 36.98 46.50
12.26	12.88	11.29	10.57 12.99 10.18	8.90 11.12
-0100-0100-		4 10 4 11 13 10 11 13 10 11 11 11 11 11 11 11 11 11 11 11 11	2-007-00-00 2-000-00-00-00	
ر ک د	4 4 O	o	0 0 <	<b>4</b> 0 0
1979	3525 3526 3801	3864 2701 2702	2825	1881
Same (3,000 feet northeast of shaft, north entry 18, 60½ inch cut).  Same (lump, over 1½-inch bar screen)	Ayrshire, near; 1 mile southwest of Winslow, Ayrshire No. 4 mine, No. 5 bed (3,400 feet south of opening, 57-inch cut).  Same (3,400 feet south of opening, 56-1-inch cut).	Same (washed slack, through I-inch wire-mesh screen).  Hartwell, Hartwell mine, No. 5 bed (1,200 feet northwest of opening, room 7 oil west entry 4, 44-foot cut).  Same (900 feet northwest of opening, room 3 oil west entry 1, 4-foot 103-inch cut).	Same (run of mine, sample 1).  Same (run of mine, sample 2).  Littles, Little's mine, No. 5 bed (2,000 feet southeast of	Same (2,600 feet east of shaft, main east entry, 6-foot 1-inch cut).  Same (lump, over 1½-inch screen)

Table of chemical analyses—Continued.

ence.	Page of this buile- tin.	521 522 522 522 522 523	523
Reference.	Bul- letin No.	25 25 25 25 25 25 25 25 25 25 25 25 25 2	रें इस
Calorific value.	British thermal units.	122.4     122.4     123.4	14, 641
Calorif	Calo- ries.	82.55.57.55.55.55.55.55.55.55.55.55.55.55.	8,134
	Air- dry- ing loss.	0.01	5.6
	Oxy- gen.	15. 1.25. 1.25. 1.20. 1.	
	Nitro-gen.	11.238 11.238 11.238 11.233 11.233 11.248 11.548	1.38
Ultimate.	Car-	88.73 8.73 8.73 8.73 8.73 8.73 8.73 8.73	
٦	Hy- dro- gen.	644.6.6.6.4.6.6.6.4.6.6.6.6.6.6.6.6.6.6	
	Sul-	011999111 844400440 4406444440 198211888312 22888888 1982	2.42
	Λsh.	6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2 6 6 6 7 2	9.62
nate.	Fixed car-	44 284 284 284 284 284 284 284 284 284 2	53.84 43.86
Proximate.	Vola- tile mat- ter.	88 4468468	46.16
	Mois- ture.	14. 23 12. 62 12. 15 12. 17 12. 17 13. 85 13. 85	11.50
	Con- di- tion.		4 co =1
Sample.	Kind.	4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 4 < 0 < 0	4
Ø	Lab- ora- tory No.	1883 1884 2087 1773 1774 1859 1776 1776	1412
	Locality, bed, etc.	INDIANA—Continued.  SULLIVAN COUNTY.  Dugger, No. 4 mino, No. 4 bed (500 feet northeast of shaft, room 8, east entry 1, 4 foot 11½ inch cannot be	Same (room 4, off southwest entry, 61½-inch cut).

		524	524			525	525			526	526		526	526	
332	261	290	336	290		290	383	290	290	332	33.55	335	18	2902	88
	11, 061 12, 485 14, 710			10,318 11,997 14,393		11,360	14,636	10,948	14, 913 11, 119 12, 755	14, 461 14, 918 11, 543 13, 363	14, 562	11, 146 12, 098 14, 305	12,026	14,609	11,759 13,001 14,729 15,253
	6,145 6,936 8,172			6,732 7,996 187		6,311	8, 131	6,082	6,177 7,086	8,2,0,5,0,5,0,5,0,5,0,5,0,5,0,5,0,5,0,5,0	8,090	6, 192 6, 721 7, 947	7,00 <del>4</del>	8,116	6,533 7,223 8,183 8,474
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	7.99	£		8.46 10.16					18.58 8.23			14.76 8.43 9.96			15.02 7.22 8.18 8.58
1.32	1.18			1.12				1.23	11.13	1.34		1.19			11.13
	60.34			57.18 66.48 79.76					822.18 61.16 70.16			59. 75 64. 86 76. 68			64. 08 70. 85 80. 26 84. 18
÷	4.63	# · · ·		5.36					86.90			5. 22			5.55
1.08	3.32			3.22 3.22 3.22 3.22 3.22 3.22 3.22 3.22				3.50				5. 14 5. 58 6. 60			4.9.4.4 4.11.23 66.11.23
10.87	13,40	7.35	7.42	14.32		8.65	9.89	10.76	10.30	7.11	10.70	14.20	12.24	10.21	10.61
49.56	46.72			42. 29 49. 17 58. 99				54. 42 40. 91 47. 31				41. 07 44. 59 52. 71			48. 65 48. 26 54. 67
39.57	33.81 38.16 44.96			29.40 34.18 41.01				345.58 34.80 45.25 97				47.28 85.1 47.29 85.1	17.	28.8	46.85 36.19 40.01 45.33
	11.40	14.86	13.37	13, 99		13. 73	14.33	13. 53	12.82	13. 62	11.46	7.88	10.68	11.13	9.55
9.69	<del></del>		• •	3-101024		·	· · ·	<u> </u>	• • •	w4-00	<del></del>	n → 01 m	4-01	n – 01	∞ <del></del> 01 02 <del></del>
	0	V	V	0		۷	V	<u>ت</u>	<u>ي</u>		٧	<u> </u>	V	V	
	1507	1775	1807	1844		1848	1849	1960	1973	3491	3492	3775	1828	1829	2037
	Same (run of mine and lump through 34-inch screen, 15 tons).	Star City, No. 29 mine, No. 6 bed (3,900 feet north of shaft, room 1, off east entry 13, 691-inch cut).	Same (4,000 feet southeast of shaft, east entry 8, south side, 71%-inch cut).	Same (screenings, through 1½-inch bar screen)	VIGO COUNTY	Macksville, Red Bird mine, No. 7 bed (1,900 feet north of shaft, room 18 off north entry 5, 692-inch	Same (2,000 feet N. 10° E., east entry 4, off north entry 6, 4-foot 85-inch cut).	Same (run of mine)	Same (lump, over 1½-inch screen)	Seelyville, 14 miles east of; No. 65 mine, No. 3 bed 2,400 feet northeast of shaft, room 18, off right	Same (900 feet southeast of shaft, room 13, off left entry 3, 74½-inch cut).	Same (run of mine).	Terre Haute, 2 miles west of, Deep Vein mine, No. 4 bed (700 feet southeast of shaft, room 8 off south	entry 4, asts rade, 49-men cut). Same (800 feet northwest of shaft, west entry 6, north side, 41-foot cut).	Same (lump, over 1½ inch bar screen)

Table of chemical analyses-Continued.

nce.	Page of this bulle-tin.	527	528 528 528 528 528 528
Reference.	Bul- letin 1 No. b	: : : : : : : : : : : : : : : : : : :	84 % 83 83 83 48 88 83 88 88 88 88 88 88 88 88 88 88 88
s value.	British thermal units.	11, 448 13, 223 14, 449 10, 899 12, 497 14, 508	11, 819 13, 192 14, 566 11, 739 11, 122 12, 305 11, 702 11, 70
Calorific value.	Calo-	6, 360 7,346 8,027 6,055 6,943 8,060 8,317	8,7,566 8,7,236 8,7
	Air- dry- ing loss.	Ø Ø Ø	3. 3. 3. 3. 3. 3. 5. 6. 7. 7. 6. 6. 7. 7. 6. 6. 7. 7. 6. 6. 7. 7. 6. 7. 7. 6. 7. 7. 6. 7. 7. 6. 7. 7. 6. 7. 7. 6. 7. 7. 6. 7. 7. 6. 7. 7. 6. 7. 7. 7. 6. 7. 7. 7. 6. 7. 7. 7. 6. 7. 7. 7. 7. 6. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.
	Oxy-gen.	18. 9.9.9.9. 90.90	67.4.8.9 8.4.1.2 8.4.1.2
	Nitro- gen.	. 82 . 94 1. 09 1. 14	1.20 1.55 1.55 1.65
Ultimate.	· Car-	559.84 708.62 83.18	60. 70 67. 116 67. 116 83. 23
נ	Hy- dro- gen.	704777 721777 7217470	10 4 10 10 20 11 12 20 21 12 20
	Sul-	01990094004 5272222 50559523 5055953	004400444700044470 00444470 128828844884111884955 18488844
	Ash.	7. 8. 8. 3. 10. 09. 12. 10. 09. 12. 13. 86. 13. 13. 13. 13. 13. 13. 13. 13. 13. 13	8 4 4 3 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
mate.	Fixed car-	55.65 57.65	24223454 24223454 24223454 242235 242235 24235 2
Proximate.	Vola- tile mat- ter.	86.45.65.45.75.45.75.45.75.75.75.75.75.75.75.75.75.75.75.75.75	865888449888348833883388833888338883388833
	Mois- ture.	13. 13. 43. 43. 88. 12. 79. 88. 12. 79. 13. 13. 13. 13. 13. 13. 13. 13. 13. 13	10.41 9.38 9.28 9.28 9.62 9.62 11.28
	Con- di- tion.		
Sample.	Kind.	4 4 0	< < < < < < <
	Lab- ora- tory No.	3467 3468 3748	1424 1425 1426 1436 1759 1760
	Locality, bed, etc.	INDIANA—Continued.  VIGO COUNTY—continued.  3 miles west of, Home mine, No. 6 bed (3,000 feet south of shaft, room 4, off east entry 4, 50-inch cut).  Same (3,000 feet southwest of shaft, room 9, off south entry 5, 60-inch cut).  Same (run of mine)	Boonville, Big Four mine, No. 5 bed (35 yards from working face, main west entry).  Same (room 9 off main west entry).  Near; Electric mine, No. 5 bed (room 4 off north entry, 7-foot 1-inch cut).  Same (room 8 off south entry, 73-foot cut)  Same (run of mine, 39 tons)

		j	523	529			530	530	:		531	531	:	
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10,030 11,552 14,089 14,812		Ī	10,931		10,723 12,479 14,305	77, 344	10,505 12,920 14,278		10,242 12,105 14,229	70, (17	10, 289		10,019 11,678 14,197	14,913
5,572 6,418 7,827 8,229			6,073	0,012	5,957 6,933 7,947	06760	5,836 7,178 7,932		5,690 6,725 7,905	00110	5,716	100,1	5,566 6,488 7,887	8, 285
ος τυ			9.4	8.6	4.5		9.4	7.1	6.8	•	9.3	9.5	10.4	15.5
18. 62 7. 95 9. 69 10. 39					19.82 8.49 9.73				21. 49 9. 23 10. 85				19.23	
1.08 1.24 1.52 1.63					1.20				1.35	7°00	1.26	0 <del>1</del>	1.31	1.99
54. 52 62. 80 76. 58 82. 11					58.49 68.07 78.03				55.81 65.96 77.54				54. 08 63. 04 76. 63	
5.36					5.57 5.35 5.35				5.74			0 0 0	5.50	
4. 79 5. 52 6. 73					6. 4. 4. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.		3.23		4. 43 4. 43 4. 43				6.4.7.9 6.6.6.0 6.6.0 6.0.0 6.0.0	5.15
15.63			7.07	11.08	10.96		7.73	7.15	12. 63 14. 93		11.64	9.19		14. 46 17. 42
39. 27 45. 24 65. 17					39.37 45.82 52.52		41.78 51.38 56.78		53.74 41.49 49.03 57.63				50.95 37.40 43.60 53.00	35.52 42.79 51.82
31. 92 36. 76 44. 83					45. 01 35. 59 41. 42 47. 48		31.80 39.11 43.22		46.26 30.49 36.04 42.37				49.05 33.17 38.66 47.00	33. 03 39. 79 48. 18
13.18			17.13	16.14	14.08		18.69	18.59	15.39		15.65	15.50	14.21	16.99
C1 C3 -4			-00	0-0	n → 01 m →	Ħ	-010	-63	n → 0/0 ×	44	-010	2 C	co ⊷ co co	4-0300
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1941			1323	1324	1437		1332	1333	1433		1289	1291	1570	16081
<del>g</del>	INDIAN TERRITORY. (See OKLAHOMA.) IOWA.	APPANOOSE COUNTY.	Centerville No. 3 mine, lower Mystic bed (room 1, off east entry 6, off main south entry, 34-inch	Same (room 1, off east entry 6, 32-inch cut)	Same (lump, over 13-inch screen, and fine coal, over \$-inch screen, 31 tons).	LUCAS COUNTY.	Chariton, about 5 miles northeast of; sees. 4, 5, 8, and 9, 7, 72 N., R. 21 W., Inland No. 1 mine, lower bed (roun, 8, off east entry 1, south side, of the control of the	Same (room 33, off north entry 2, 91-inch cut)	Same (run of mine, 7 tons)	MARION COUNTY.	Hamilton, near; Liberty Township, No. 5 mine, Big	Same (west entry 5, south side, 80-inch cut)	Same (run of mine, 80 tons)	Same (run of mine, 6 tons)

Table of chemical analyses—Continued.

6.6 6.88 6.88 7.76 8.04 8.04	50.69 49.31 12.84 15.90 37.42 34.31 12.37 44.50 40.79 14.71
6.76 8.04 9.43 6.15 8.53	90 37 42 34 31 12 52 17 47 83 11 14 88 86.94 35.17 14 14 16 16 16 16 16 16 16 16 16 16 16 16 16
51 4.72 86 5.32 6.04 6.04 6.04	2 11.35 88.65 89.49 10. 2 43.60 44.54 11. 3 12.07 87.28 88.82 12. 2 12.24 88.82 81.
84:	8.24 30.74 45.02 16.83 33.50 49.06 17. 40.58 59.42

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261	18 25 25 25 25 25 25 25 25 25 25 25 25 25	261 28 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
11, 905 12, 794 14, 724 15, 902	25 25 25 25 25 25 25 25 25 25 25 25 25 2	12, 947 13, 336 11, 791 12, 242 12, 242 14, 922 14, 922 15, 520
8, 8, 180 8, 180 8, 834	11.0% 0.15 % 20.15 % 12.15 % 20.15 % 2	8,217 8,217 8,217 8,290 8,290 8,290
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10. 44.0. 50. 24. 25. 25. 25. 25. 25. 25. 25. 25. 25. 25	මුලිදුවී දිනිලුම් පුදුන්ගේ ස්කමල්	6.55.9 0.55.9 1.55.9 1.55.9
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62. 74 67. 43 77. 59 86. 17	25.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	88.2.88 8.0.88 6.0.08
25.45.0 25.15.1 140.0 140.0	4400 0400 20140 10140 10140	2.44.08 5.40 5.40 7.70
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12.19	15.15 15.46 15.46 10.13 12.24 12.24 12.25 12.25 12.25 10.54 10.54 11.31 11.31	9, 85 9, 84 7, 92 8, 21 12, 97 13, 65 11, 38 11, 38
45. 16 48. 53 55. 85	4489889988 883488889 8488 898888888 88888219 1189	55. 23 55. 23 55. 10 55. 10 55. 83 55. 83 56. 16 60. 16 60. 58 60. 58
35.70 38.37 44.15	######################################	35.88 36.88 36.75 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05 37.05
6.95	2. 01 2. 54 2. 56 1. 11 5. 70 4. 60	3. 50 4. 99 6. 09 2 from v
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1473	1036 1086 1411 1413 1567	1018 1020 1097 661D
Atchison, I mile below; Atchison mine, Cherokee bed, common funite lump, 10 tons.	Scammon, † mile Jower V Shaft, 4 Same (506 Same (101 (900)ces cut), Same (54 John Portion Same (101 portion Same (102 Same (103 Same (10	Fleming, No. 10 mino, lover Weir-Pittsburg bed (sample 1,a 414-inch cut).  Same (sumple 2,a 39-inch cut)  Same (run of mine, 22 tons).  Frontenae, 3 miles north of; see, 29, T. 29 S., R. 25 W., No. 11 mine, Cherokee or Weir-Pittsburg bed (3,000 feet south of opening, south cuty 1 off main west entry, 364-inch cut).

Table of chemical analyses—Continued.

		of complete			1											1	
	2	outinbie.			roximate.	mare.				Utimate				Calorifi	Calorific value.		Reference.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy- gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
KANSAS—Continued.																	
Frontenac, No. 11 mine—Continued. Same (4,000 feet west of opening, main west entry, 34f-inch cut).	a099	4	-010	5.28	33.95	51.61	9.16	3.99	0 0	0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			7,229	13,012	13	534
Same (run of mine)	7010	Ç	2420	5.75	33.28	50.21	13.68	4.0.0 30.0 20.0 20.0 20.0 20.0 20.0 20.0	5.01	66.68	1.15	8.41	2.8	8,449 6,721 7,132	15, 208 12, 098 12, 838	73	0 0 0
Yale, No. 11 mine, lower Weir-Pittsburg 3-foot bed (sample 1, a 364-inch cut).	1017	4	24010	2.44	35. 16 36. 04	2000	10.60	77.03	5.43	82.75	1.43	4. 10		7,246 7,427	14,998 13,043 13,369	261	535
Same (sample 2,a 3-foot cut)	1019	∢	. — cı	2.36	34, 62	52. 46	11.79	5.88 6.02	· · · · · · · · · · · · · · · · · · ·					8,333	14,999	201	535
Same (lump and nut, two-thirds of carload)	1122	၁	ლ <del>–</del> 64 ლ	4.18	40.33 32.59 40.08	59.55 59.65 59.72 59.72 59.73	17.91 18.69	6.27 6.547 6.547		54.58	-	2.833 0.82	2.0	6,468	11,642	307 78 78 78	0 0 0 0
Same (slack, uninspected)	4361	C	4-00	8.01	000	45.22 49.15 63.15	20.38 22.16	5.11	24.4.7	86.38 58.52 72.62 72.62	11.128	10.65 4.83 8.83 9.84	6.6	8,832 8,932 8,426 8,426	15,898 10,640 11,567	332	* * 6 0
LINN COUNTY,			4	:	·-					37.46		5.28		8,676	15,617		
Jewett, No. 1 mine, Weir-Pittsburg bed (2,000 feet northeast of shaft, east entry 6, 32-inch cut).	2790	¥		11.13	83	38	12.60	2.4				::	9.5	6,233	11,219	332	535
Same (1,200 feet northwest of shaft, west entry 3, 264-inen cut).	2791	4	• •	10.12	588	52.82	12.81	888 888				: :	7.6	8,172	14, 710	33 S	535
Same (lump, over 1‡-inch bar screen)	2843	O		9.04	39.59.59 39.69.59 45.69.69	60.75 50.08 60.55	15.72	. 4. 6. 6. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	5.01 5.33 8.61 8.61 8.61	60.99 67.05 81.06 85.28	1.06	13.50 6.00 7.27 7.57		6, 190 6, 805 8, 227 8, 537	11, 142 12, 249 14, 809	332	

	ANAL	YSES OF	CUA	rs III		2111		~			
536	536	536	:		537	537	537		538	538	538
<b>58.</b> %	23888	290 261 48	261	290	8250	822	280	290			
14,322 14,753 15,309	14,375	14, 148 14, 602 15, 295	15,444	13, 214 13, 941 15, 264 15, 412	0 0 0 0 0 0 0 0 0 0 0 0		14,121 14,760 15,118	13,923 14,558 15,143	10, 224		
7,957 8,196 8,505	7,986 8,269 8,550	7,860 8,112 8,497	8,580	7,341 7,745 8,480 8,562			1-00°0	8,088 8,413	8,408		
1.0	1.5	1.2	i. 2	3.7	2.1	2.5	2.2	2.8	4.5	5.6	1.7
		9.76	7.66	10.63 6.33 7.03				7.94	8. 32		
		1.88 8.88 8.88	2.01	1. 67 1. 76 1. 93 1. 96				1.57	1.72		
		77.37	84.75	73.08 77.10 84.41 85.51				80.97 84.23			
		5.25		5.28 4.96 5.43 5.50				5.16 4.89 5.09			
.89	28.5.2.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3	26.1.1.28.1.28.1.28.1.28.1.28.1.28.1.28.	1.28	1.18	. 54	50.05	86.05	12.69.5	55	33.5	2122
3.53	2.88 3.18 3.29	2.93 3.03 4.39 4.53	5.95	8.22	3.23		2.28	3.70	2.54	3.64	3.47
		52. 55 59. 68 50. 55 56. 39 58. 19		60.94 53.10 56.02 61.34				56.92 59.51 61.90			65.15 67.18 59.16 61.36
36. 31 37. 09	38.15 38.15 37.98 37.17	38. 44 37. 29 38. 12 38. 12 37. 28	35.65 36.73	33. 47 33. 47 38. 66				35.02 36.62 38.10			34.85 36.00 37.25 38.64
2.91	2.81	3.25	2.95	5.21	4.45	4.72	4.32	4.36	6.29	8.33	3.35
-00	2-00-0	m=0m=0	24-0	<b>∞</b> −0004	HÓ	2-101	2-10	ಣ=೧೯	4-0	n − n	m = 01 m
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1321	1322	2351	1522	2445	2271	2272	2270	2528	4525	4527	4528
KENTUCKY.  BELL COUNTY.  Straight Creek, Straight Creek No. 2 mine, S raight Creek bod (main entry, 37-inen eut).	Same (room 76, off main entry, 384-inch cut) Same (3,000 feet northeast of drift mouth, room	Same (3,600 foot from drift mouth, room 48, off north butt entry 4, 3±-foot cut).  Same (run of mine, first portion, 23 tons)	Same (run of mine, second portion, 12 tons)	Samo (scroenings, slack through 14-inch scroen).	Big Black Mountain, prospect pit, High Splint bod (1. mile south of Gilliam's rock nouse, 731-inch	Same (Gilliam's rock house, 25 feet from out- crop, 585-inch cut).	Same (weathered sample)	Samo (run of mino)	Poor Fork, near; mine on the Anthony Blair tract	Mine on the C. Blair tract	Mine on the John Creek tract

a Samples 1 and 2 from widely separated parts of same mine.

Table of chemical analyses—Continued.

	S	Sample.			Proximate.	nate.			n	Ultimate.				Calorif	Calorific value.	Reference.	noe.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro-gen.	Oxy-	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulle- tin.
KENTUCKY—Continued.  HARLAN COUNTY—continued.  Poor Fork—Continued.  Mine on the Rebecca Creek tract	4526	Д	100	4.9.1	35. 56 35. 31 35. 31	58. 01 61.02	3. 49	19.0					3.5				538
HOPKINS COUNTY.			<b>5</b>	b		200		200			1 5 6 9	0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
Barnsley, Barnsley mine, No. 9 hed (west entry 3, 52-inch cut).	1361	4	-81	9.10	36, 21	46,64	8.86	3. 27	: :					0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	558	538
Same (break-through between north entries 3 and 4, 41-foot cut).	1367	4	m — 61 c	7.98	43.70 40.81	49.08	9.30	6.4.4.4.6.00 6.00 6.00 6.00 6.00 6.00 6.					63	6,647	11,965	######################################	538
Same (over F-inch screen, 17 tons)	1505	0	2-01	7.84	37. 01 40. 16	51.23	7.92	3.94					1.6	8,037	14, 407	\$ 30	:
Same (run of mine, 12 tons)	1506	၁	m – 01 m	7.92	439.03 44.00 44.00	56.55 56.93 56.83	10.06	~ % % 4 \$ \$ \$ \$ \$	5.39	65. 29 70. 90 79. 60	1. 40	14.34 7.93 8.90	2.2	6,679 7,253 8,143	12,022 13,055 14,657	261	:
Barlington, No. 11 mine, No. 11 bed (room 10 off west entry 3, 84-inch cut).	1365	V	4-121	8. 49	38.05		7.10	3.53	5.74		1.78	9.31	2.9	8,406 7,858 7,494	15,131 12,344 13,489	84	539
Same (room 15 off west entry 4, 62-inch cut)	1366	V	n 01	7.80	45.08 37.60 40.78		10.22	4. 18					2.6	8,125	14,625	261	539
Same (over 3-inch screen, 20 tons)	1461	0	n – 01 m	7.91	45.86 45.73 45.73	54. 14 45. 02 48. 89 54. 27	9.13	4.93.52 38.93 36.23 36.23	5. 48	65.81 71.46 79.33	1.32	14. 74 8. 38 9. 30	2.7	6,778 7,360 8,170	12,200 13,248 14,706	261	
Same (through I-inch screen, 5 tons)	1469	Ö	4-00	9. 47	33. 54	39. 51 43. 64 54. 23	17.68	4.94	5.80	82, 94	1.54	9.72	c,	8,440	15,192	84	

240		240	540	540	540			541	541	541	541	541	541		543
1		:	:	13	1822	290				:					316
13,770	15,800	13,748 14,058 15,733	14, 251	13,687	10,000	13,743	14,918			13,455	13,424	14,857 13,369 14,315	13,471	14,836	
7,650	8,778	7,638	8,054 8,054	8,172	5,004	7,635	( \infty \)			7,475	7,458	8, 254 7, 427 7, 953	8, 241 7, 484 8, 039	8,242	
1.5		1.3	₹.	4.5	4.2	2.2		4.4	3.0	3.7	3.5	4.1	4.1		1.9
8,70	7.57	6.99	20.28				0 × 0 × 0			13.52	8.04 7.63	8.09 8.09	13.74	8.37	
1.16	1.33	1.17	1.33				1.57			1.47	2.4.5	1.45	1.58	1.62	
71.98			74.25 2.25 2.52 2.52				83.80			74.91	82. 93 74. 94 80. 00	82. 94 74. 79 80. 09	76.07	83.77	
6.47			6.83				322					5.57			
1.20	1.38	1.09	1.02	8425	34.45	27.5	33	.50	3228	1:13	328	1.97	588	02.	55.
10. 49		10.46	9.31	2.03	2, 26	2.76		2.48	4.10	3.24	3.31	3. 26	2.29		2.57
38, 75				55.99								59.81 54.87 58.74			61. 10 63. 62 65. 37
48.40				37.65								40.19 35.27 37.77			32.37 33.70 34.63
2.36		2, 20	1.70	6.95	6.52	5.12		7.17	5.61	6, 43	6.32	6.60	6.90		3.96
-10	4 m	-0.6			-010	0-10	100	·010	2-010	2-101	244	n – α:	2010	က	-6100
4		4	٧	<b>V</b>	V	C		V	V	<	٧	٧	V		A
7133		7132	5437	2405	2406	2592		10548	10549	10550	10551	10552	10553		3828
JOHNSON COUNTY.  Flambeau, southeast of, 400 yards up mountain side, Plambeau mine Cannel yad a onchein rullar.	(150 feet southeast of opening, main entry 1, 18-inch cut).	Same (250 feet southeast of opening, entry 5, 514-inch cut).	Lesley (East Point post office), Lesley nine, Lesley bed, cannel coal	Paintsville, 5 miles southeast of; Miller Creek, country bank, Miller Creek bed (100 feet west of drift mouth, right outer 1 22-feet out).	Same (140 feet west of drift mouth, main entry, 34-foot cut).	Same (run of mine)		Van Lear, Mine No. 1, No. 1 bed (face of No. 1 right heading, No. 1 opening, 55½-inch cut).	Same (face of second left, off west opening of No. 1 mine, 534-inch cut).	Same (composite of Nos. 10548 and 10549)	No. 2 mine (face of first right, 36-inch cut)	No. 3 mine (face of main entry, 39-inch cut)	No. 4 mine (face of main entry, 44-inch cut)	LETCHER COUNTY.	Jewel, 3 miles southwest of; Potter bank, on Bens Branch of Elkhorn Creek, Upper Elkhorn bed, 96-inch cut.

a About 300 feet above Miller Creek (No. 1) bed.

Table of chemical analyses—Continued.

ence.	Page of this bulletin.	12 17 12 12 12 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	544	544
Reference	Bul- letin No.	83 83 83 89 89 89 89 89 89 89 89 89 89 89 89 89	316	348
Calorific value.	British thermal units.	11. 14. 11. 11. 11. 11. 11. 11. 11. 11.	0 0	
Calorif	Calo- ries.	66.659 7.1284		
	Air- dry- ing loss.	7 0 0 0 0 0 4	2.8	1.7
	Oxy-gen.	47.000 25.600 25.600 26.600 26.600 26.600 26.600 26.600 26.600	1 0 0 1 0 0 0 0 0 0 0 0 0 0 0	
a <sup>s</sup>	Nitro- gen.	2544211 2544211 2644211 2644211 2644211 2644211		
Ultimate.	Car-	\$3.24 \$3.24	0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	Hy- dro- gen.	4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.		
	Sul-	444644664 00000000000000000000000000000	77.	.54
	Ash.	10. 32 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4.78	4.08
mate.	Fixed carbon.	55.55.58 55.55.	58.73 61.20 64.41	60.81
Proximate.	Vola- tile mat- ter.	88844974884 86488884 8888 8888884468 88858884 8888 8888884468 888688844 8848	32, 46 33, 82 35, 59	31.76
	Mois- ture.	8.76 8.47 8.75 8.04	4.03	3.35
	Con- di- tion.	намнамнамт нампампамтамт	-010	78
Sample.	Kind.	4 4 C 4 A C	Д	g
\ \vec{v}{2}	Lab- ora- tory No.	2453 2454 2595 3722 3723 3865 4211	3708	3706
	Locality, bed, etc.	KENTUCKY—Continued.  MULENBERG COUNTY.  Central City, Central mine, No. 9 bed (14 miles northeast of shaft, room 43 off north entry 14, 55\$-inch cut).  Same (14 miles south of shaft, room 9 off southearty 14, 55\$-inch cut).  Same (1ump, over 14-inch bar screen)  OHIO COUNTY.  McHenry, 2 miles west of, Broadway mine, No. 9 bed (200 feet west of shaft, 53\$-inch cut).  Same (550 feet north of shaft, 52\$-inch cut).  Same (nut, through 1\$-inch screen and over \$\$\frac{1}{2}\$-inch screen).	Hellier, Greenough mine, just above mouth of Cassell Fork of Marrowbone Creek (606 feet from entrance, whole Upper Elkhorn bed (461-inch	1mileabove, Pikemine, on Cassell Fork of Marrow- bone Creek, Lower Elkhorn bed, 720 feet

	544	544	544	544	545	546	546	547		547	547			548	548	
	316	316 348	9	9	316	348	316	316		332	330 33	332		48	87	261
			13,649	13,928	10,040					13,489	10, 040	13, 239 14, 004 15, 284	15, 439	12,861	13,010	11,950 12,614 14,836 15,480
1			7,583	8,011	0,000					8,098	0,022	7,355	8,577	7,145	0, 120	6,639 7,009 8,242 8,600
	1.8	1.3	2.6	2.0	1.7	-i-	63	3.4		5.1	5.7	3.2		2.6	2.0	2.8
-	::		7. 13	7.56	3 : :					0 I 0 I 0 I 0 I 0 I		12.05 7.61 8.31	8.43			10.68 6.34 7.46 7.89
İ			1.06	1111	3							1.19		* * * * * * * * * * * * * * * * * * * *		1.24
			76.30	79.73								72.59 76.78 83.81				64.65 68.24 80.26 85.06
-				2022								5.07				4.71 5.10 5.42
.58	94.4	340	30000	33.53	88.88	888	772	57.52		1.05	1.07	1.25				2.4.4.7.0 4.7.0 4.0.4.4.0
	22.37	14.81 15.25	6.84	5.73	8.25	8.19	2.08	7.24		4.60	5.16	7.92	:	7.40	7.01	14.18
62.69							61.57 64.63 66.07	59.75 63.08 68.30		57.25 61.87	56.65	55.63 56.84 64.22				54.98 45.48 48.01 56.46
34.31							31.62 33.19 33.93	27.74 29.28 31.70				32.78 35.78				45.02 35.07 37.02 43.54
Ī	3.19	2.90	3.73	3.41	3, 45	3.00	4.73	5.27		7.46	8.09	5.46		4.61	4.76	5.27
2	-610	2-1010	n + 01 m	H 63 6		-010	2-030	H0100		-010	2-010	2-010	4	-010	9-101	თ <b>⊣ ი≀ თ </b> ▼
_	Д	В	4	4	B	B	Д	m		4	¥	Ö		4	٧	Ö
	3702	3705	6928	6929	3829	3662	3063	3661		3678	3679	3860		1382	1384	1539
from entrance, excluding laminated coal,	Same (faminated coal only, 22-inch upper bench, composite sample).	Same (whole bed, 5+inch cut)	Same (500 feet south and 600 feet west of open- ing, 75 feet from outcrop, right heading 1,	Same (1,600 feet south of opening, main heading, right parallelentry 4, 43; inch cut).	24 miles west of, at head of Cassell Fork, Musgrove prospect of the Flatwoods bed, 63-loot cut from ten forch.	Regina, near; at Coleman Hollow, Coleman mine, Millard 52-Inch bed.	2 miles cast of; Martin bank on right-hand branch of Road Creek, Lower Elkhorn, excluding laminated coal, bed, 49-inch cut, 40 feet from	4 miles south of. Pond Creek, just below mouth of Laurel Branch, Moore bank, 30 feet from en- trance, Lower Elkhorn (whole) bed, 52-inch out.	UNION COUNTY.	Sturgis, 2, miles southwest of, Bell slope, No. 1 bed (100 feet north of opening, 31,-inch cut).	Same (60 feet north of opening, 33%-inch cut)	Same (run of mine)	WEBSTER COUNTY.	Wheatcroft, Wheatcroft mine, No. 11 bed (room 8 off west shaft entry, 70-inch cut).	Same (west entry 2, 65-inch cut)	Same (run of mine)

Table of chemical analyses-Continued.

lce.	Page of this bulletin.	548		549	549		550	550	550	220
Reference.	Bul- letin t No. bi	\$			:			:	:	
value.	British thermal l units.	12,874 13,738 14,953		12, 987 113, 369 114, 821 113, 608 14, 328	10,028		14,020	15,670		13,910 14,290 15,710
Calorific value.	Calo-	7, 152 7, 632 8, 307		7, 215			7,790			7,725 7,940 8,730
	Air- dry- ing loss.	53		1.4	2.4	:	1.5	1.5	2.3	1.9
	Oxy-gen.	14.40 9.41 10.24		9.75						4.86 2.55 2.81
	Nitro- gen.	1.37 1.46 1.59		1.11						1.74
Ultimate.	Car- bon.	69. 78 74. 46 8L 04		71.13 73.22 81.17						79.21 81.39 89.48
٦	Hy- dro- gen.	5. 40 5. 56		5.25						4.25
	Sul-	1.35		3.16	20.6.6.		1.10	1.15	888	11386
	Ash.	7.61		9.52 9.80 4.43 4.66	2.55		8.8	യ യ ധ സ	9.2	8.80 9.04
mate.	Fixed carbon.	54. 13 57. 77 62. 87		47.47 48.87 54.18 54.47 57.35	56.70 60.01 61.68		75.0	74.0	73.35	83.5 83.5
Proximate.	Vola- tile mat- ter.	31.97 34.11 37.13		40.15 41.33 36.08 37.99			14.5	16.5	14.5	16.5
	Mois- ture.	6.29		2.86	5.51		2.3	2.2	3.0	2.7
	Con- di- tion.	- C2 C0		намна	2-00		-670	20-0	20-0	m == cq co
Sample.	Kind.	<		4 4	4		4	<	4	
	Lab- ora- tory No.	7441		10062	1330	-	8769	8770	8771	8843
	Locality, bed, etc.	KENTUCKY—Continued.  WEBSTER COUNTY—continued.  14 miles east of: No. 5 mine, 560 feet from mouth, room 5, south heading 1 of east entry, Owen (No. 11) bed, 594 inches.	WHITLEY COUNTY.	Barthell, No. 1 mine, room 14, left entry 6, No. 2 bed, 48-lach bed. Kensee, Main Jellico mines (new mine), Jelico bed	Same (old mine)	MARYLAND. ALLEGANY COUNTY.	Eckhart, Ocean No. 3½ mine, Big Vein bed (first cross- cut on motor road No. 2, 8 feet 5½ inches).	Same (left heading 1, 50 feet from motor road, 87±meh cut).	Same (left heading 1, off main heading, 38-inch cut).	Same (composite of Nos. 8760-8771)

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13, 887 14, 15, 15, 15, 15, 15, 15, 15, 15, 15, 15	
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22 11.28 11.28	
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24.4.4 26.5 39.5	1   1   2   3   4   5   6   6   6   6   6   6   6   6   6
111111	8888888888
98 3 3 3 3 4 4 5 4 6 6 7 8 8 6 7 1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1.8 8.7 7.6
1-1-00-1-00-1	83.7.18 84.0.5.5.4.5.7.7.8.4.0.7.7.8.3.7.1.3.7.7.8.3.7.1.3.7.7.1.3.7.1.3.7.1.3.7.1.3.7.1.3.7.1.3.7.1.3.7.1.3.7.1.3.7.3.7
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	17.51 16.0 16.0 16.0 16.0 16.0 16.0 16.0
2. 64 2. 65 2. 85 2. 85 2. 85 2. 85 3. 4 4. 3 4. 4 11.7.55 4. 5 11.7.5	2.5 14.0 2.4 15.55 2.4 15.55 14.55 16.0 16.0 16.5 16.5
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6356 A A A A B B B B B B B B B B B B B B B	8757 A 1 2.5 8758 A 1 2.4 8759 A 1 2.4
of drift mouth, in-  Sewickley or Tyson  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, south  Grift mouth, right  Grift mouth,	8757 A 1 2.5 8758 A 1 2.4 8759 A 1 2.4
of drift mouth, in-  Sewickley or Tyson  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, south  Grift mouth, right  Grift mouth,	8757 A 1 2.5 8758 A 1 2.4 8759 A 1 2.4
of drift mouth, in-  Sewickley or Tyson  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, south  Grift mouth, right  Grift mouth,	8757 A 1 2.5 8758 A 1 2.4 8759 A 1 2.4
of drift mouth, in-  Sewickley or Tyson  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, in-  Grift mouth, south  Grift mouth, right  Grift mouth,	8757 A 1 2.5 8758 A 1 2.4 8759 A 1 2.4
cord drift mouth, income with the dealing.  Sewickley or Tyson  Gase  A 1 2.85  Transcript bed (2,100 feet of drift mouth, income of drift mouth, income of drift mouth, south  A 7, off main entry, seed A 1 2.96  Tyson No. 9 mine, certain certain drift mouth, right of drift mouth, right of drift mouth, right certain certain certain drift mouth, right certain certain drift mouth, right certain drift mouth, right certain drift mouth of mine).  Tyson No. 9 mine, certain certain drift mouth, right certain drift mouth of mine).  Tyson bed (950 feet of drift mouth, right certain drift meading, 34f-inch and drift meading, 34f-inch drift	8757 A 1 2.5 8758 A 1 2.4 8759 A 1 2.4
bed (2,100 feet 6358 A 1 2.85 fift mouth, including, 6359 A 1 2.85 finch cut).  Skley or Tyson 6356 A 1 2.99 fift mouth, south 6357 A 1 2.99 firm mouth, south 6357 A 1 2.90 firm mouth, south 6357 A 1 3.4 firm mouth, south 6357 A 1 3.4 firm mouth, right 6361 A 1 2.95 firm of mino).  In No. 9 mine, 6363 A 1 3.4 firm outh, right 6361 A 1 2.95 firm of mino).  In No. 9 mine, 6363 A 1 2.95 firm of mino).  In No. 9 mine, 6363 A 1 2.95 firm of mino).  In No. 9 mine, 6363 A 1 2.95 firm of mino).  In No. 9 mine, 6364 A 1 2.95 firm of mino).  In No. 9 mine, 6362 A 1 2.95 firm of mino).  In No. 9 mine, 6364 A 1 2.95 firm of mino).  In No. 9 mine, 6364 A 1 2.95 firm of mino. Big 6352 A 1 2.66 firm of mino.	3 2.5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3

Table of chemical analyses—Continued.

ence.	Page of this bulletin.	553	553	553	553	553	224	564		554	554	554
Reference.	Bul- letin No.		:				332	13 33				
Calorific value.	British thermal units.	14,100	14,560			14,110	15,720	14, 328 14, 692	14, 162 14, 665 15, 826	15, 935 14, 177 14, 726	15, 757 14, 449 14, 830	15, 786 14, 461 14, 778 15, 788
Calorific	Calo- ries.		8,090			7,840	8,730	7,960	7,868 8,147 8,792	8,853 7,876 8,181	8,239	8,770 8,034 8,210 8,771
	Air- dry- ing loss.	2.2	2.4		2.3	1.7	2.0	. S	2.7	3.2	1.9	1.5
	Oxy- gen.	5.11	2.54			3.15	3.42		5.73 2.79 3.01	3.03		
	Nitro- gen.	1.77	1.83		1 1 1	1.53	1.70		1.45	1.04		
Ultimate.	Car- bon.	80.99	83.64			80.11	89.22		80.17 83.01 89.58	90.43	* * * * * * * * * * * * * * * * * * *	
٦	Hy- dro- gen.	4.51	4. 62			4.36	4. 54		4.49	4.90		
	Sul-	. 92	1.02	30.88	98.89	888	1.12	85.29	22,22,22	78	œ.œ.œ.	1.01 .87 .89 .95
	Ash.	6.7	6.9	7.1	6.1	7.7	6.14	6.30	7.09	6.30	5.90	6.25
mate.	Fixed carbon.	75.6	78.1 84.0 75.4 77.9	77.7	77.9	75.8	73.09	73.08	80.08 71.84 74.39 80.28	72.59	80.69 73.62 75.56	74.15 74.15 75.77 80.94
Proximate.	Vola- tile mat- ter.	14.5	15.0 16.0 14.0	15.0	15.5	14.0	15.5 18.23 18.71	18.17	19.92 17.65 18.27 19.72	17.38	19.31	19.57 17.46 17.84 19.06
	Mois- ture.	3.2	3.2	2.7	3.1	2.5	2.54	2.47	3.42	3.73	2.57	2.14
	Con- di- tion.	-	10 H 01	m = 01	o H Oli	2101	n → 61		n <del></del> 01 m ·	4-01	n – n	m = 01 m
Sample.	Kind.	4	, A	V	Ą	٧	¥	¥	Ö	¥	¥	4
02	Lab- ora- tory No.	8840	8760	8761	8762	8841	4334	4335	4386	6351	6364	6365
	Locality, bed, etc.	MARYLAND—Continued.  ALLEGANY COUNTY—continued.  Frostburg, Ocean No. 3 (Hoffman) mine—Continued. Same (composite of Nos.8757, 8783, and 8789)	Same (room 4, right entry 4, off Klondike entry, 9-foot 9-inch cut).	Same (room 10, right entry 8, off Klondike entry, 10-foot 7-inch cut).	Same (350 feet northeast of the shaft, in shaft heading, 2½-foot cut).	Same (composite of Nos. 8760, 8761, and 8762)	Lord, 2 mile west of; Ocean No. 7 mine, Big Veln or Pittsburgh bed (6,600 feet southwest of open-	Same (4,500 feet south of opening, 95-inch cut)	Same (run of mine).	Same (4,500 feet southeast of slope, room 1, left midway 5, 103-inch cut).	Same (1,700 feet southwest of slope, room 7, right midway 1, 1042-inch cut).	Same (3,600 feet northeast of slope, room 7, left heavy grade 3, 113-inch cut).

554 554	554	554	554	554	554	554	554	554	554	554	557	267
	:		:					:	:			
14, 483 14, 818 15, 757 14, 197 16, 467 15, 683						14,240 14,670 15,800	14,360 14,750 15,850					
8,046 8,232 8,734 7,887 8,713 8,713						7,910 8,150 8,775						
1.7	1.6	61	2.0	2.0	2.1		2.0	1.9	2.6		2.2	3.1
23.44.2.2.4.2.2.4.4.2.2.4.4.2.2.4.3.3.4.4.3.3.3.4.4.3.3.3.4.4.3.3.3.4.4.3.3.3.4.4.3.3.3.4.4.3.3.3.4.4.3.3.3.3.4.4.3						2.52 3.21 3.21	2.30					
1.73						1.882	1.81				0 0	
82.45 88.35 88.70 88.0.87 89.34							81.34 83.54 89.79					
8528686 8528686 8444444						22.53	4.43				0 · · · · · · · · · · · · · · · · · · ·	
1.09002035	88888	88888	8888	805.70	57:58	888	8.6.86	95.60	25.85	1.08	888	88.88
5.83 7.7 7.0 7.1 6.3 6.3	6.0	7.2	7.1	6.9	5.7	6.9		6.9	7.3	8.0	6.0	8.2
25.25.25.25.25.25.25.25.25.25.25.25.25.2	84.0 76.3 83.5	74.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	7.7.7	77.7 77.4 83.0	23.73	75.6	75.1	76.2 78.1 84.0	76.4	74.0	6.7.5	71.8
17. 35 17. 35 17. 35 17. 35 17. 35 19. 0	16.00	15.5 16.0 16.5 16.5	15.0			44.4 20.00 0.00				15.5		16.5
2. 4 2. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	4.	2.5	2.7	2.9	3.0	3.0	2.6	2.6	3.6	2.7	83.33	တ
-00-00-00-0	100-010		2-C1 C1							2-016		2400
4 4 4 4	4	4 4	4	4	4	4	4	4	4	4	4	4
7235 7234 8779 8780	8781	8782	8817	8831	8832	8838	8839	8829	8860	8861	8818	8819
Same (4,600 feet south, 30° east of slope, right entry 5, midway slope, crosseut, room 8, 10-foot bed, 8-foot 74-inch eut.) Same (2,600 feet east of slope, crosseut heading 2, off left heavy grade 3, room 16, bed 9 feet 11 inches, 9-foot 74-inch eut.) Same (room 4, off straight heading between cross entries 2 and 3, left entry 2, off heavy grade slope, 9-foot 14-inch cut.) Same (room 7, right entry 4, off midway slope,	9-ioot 14-inen cut). Same (pillar of room 22, off right entry 2, midway Slope, 9-foot 3-inch cut).	Same (room 6, off straight entry, between cross entries 2 and 3, left entry 3, off heavy grade slope, 8-foot 10-inch cut).  Same (pillar in room 5, left entry 1, off heavy grade slope, 9-foot 4-inch cut).	Same (room 1, right entry 3, off heavy grade slope, 8-foot 82-inch cut).	Same (room 3, stub dip heading, off midway slope, 8-foot 83-inch cut).	Same (pillar of cross entry 2, right entry 4, midway slope, 1041-inch cut).	Same (composite of Nos. 8779, 8780, 8782, 8817, 8831, 8859, and 8860).	Same (composite of Nos. 8781, 8783, 8832, and 8861).	Same (room 10, left entry 5, off heavy grade slope, 120-inch cut).	Same (room 8, right entry 1, off heavy grade slope, 9-foot 5-inch cut).	Same (pillar in room 2, left entry 4, off midway slope, 9-foot 12-inch cut).	imile west of; Tyson No. 7 mine, Tyson bed (room 4, off first left heading, 33-foot cut).	Same (right heading 3, 3-foot cut)

Table of chemical analyses-Continued.

	02	Sample.			Proximate	nate.			C	Ultimate.				Calorifi	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulle-tin.
MARYLAND-Continued.																	
ALLEGANY COUNTY—Continued.  Lord, Tyson No. 7 mine—Continued.  Same (right heading 1, 3±10ot cut)	8820	4	-121	2.9	16.5	73.3	7.3	.95					2.2				557
Same (composite of Nos. 8818-8820)	8930	i	ω <u></u>	83	18.5	73.2	7.0	1.10	4.68	79. 73	1.68	5.94	2.6	7,820	14,080	:	557
Midland, Ocean No. 8 mine, Upper Sewickley or Tyson bed (1.300 feet northwest of drift, break	6355	¥	900-01	3.66	18.0 16.88 17.52	82.0 71.41 74.12	8.36	1.03	4.82	88.85	1.88	3.30	3.0	8,715 7,737 8,031	15,690 13,927 14,455	:	228
through in main heading, 24-foot cut). Same (500 feet northeast of drift, room 9, right heading 2, 324-inch cut).	6360	Ą	. → c₁	2.54	19. 12 18. 22 18. 70	80.88 72.01 73.88	7. 23	1.16					1.9	8,763 7,935 8,142	15, 773 14, 283 14, 656	:	558
Same (1,000 feet northeast of drift, room 7, right heading 4, 33\frac{2}{3}-inch cut).	6366	A	e → 61	2.86	20. 20 17. 13 17. 63	79.80 69.62 71.67	10.39	2223					2.3	8, 794 7, 582 7, 804	15,829 13,648 14,049		258
Same Pittsburgh bed (split between rooms 19 and 20, off Cullen's heading, 9-foot cut).	8118	₹	o → 01 c	3.1	15.5	74.5	6.9	38.89	4.36	83.31	1.69	2500	2.3	7,815 8,065	14,520		228
Inite from: Tyson No. 8 mine, Tyson bed (room 1, left entry 7, off drift 1, 29 inches).	8833	Ą	0 H Cl C	2.7	16.5	35.73.8	8.0	1.00	60 :	00.00	70 1	8	1.9	00,000	70,000	:	559
Same (bore-hole heading off drift 2, 311 inches).	8862	A	, HO	رى بى	16.5	75.0	7.9	388					2.5			:	559
Same (composite of Nos. 8833 and 8862)	8931	A	ω⊣α	2.9	18.0 17.0	72.7	7.9	1.05	4.58	79.67	1.49	2.33	2.2	7,805	14,050		529
1 mile from; Ocean No. 1 mine, "Big Vein" (rock heading, room 34, cut 8 feet 14 inches).	8763	В		2.4	18.5	76.6	7.0	9868	4.78	89.33	1.67	3.06	1.6	8, 755	15,750		559
Same (right side of room 32, off Welsh's heading, 94-foot cut).	8764	м	о — c1 co	2.7	14.0	77.84.0	7.5	3.88.8					1.7				559

656	559	559		560		KRI		561	700	562
				83898888 380988888	590	4	0	<b>D</b>		
	13,950	15,760 14,100 15,750 11,130 11,520	15, 690	13,853	13, 255 13, 572 15, 680 15, 887	11 721	13,374	14,067		
	7,750	8,735 8,055 8,055 9,070 070	8,720	7,696 7,891 8,746	7,364 7,540 8,711 8,826	4	8,055	6,912 7,815 8,113		
2.0	1.6	1.8	:	1.8	# : : :	1		G. 5	7.8	4.7
		41.014.01 08.01.014.01 08.01.014.01			4.010.0. 88.0.4	10 00	9.54	19.21 10.12 10.51		
		1.81 2.02 1.82 1.82			1.32	-	1.35	1.25		
		82.94 80.06 80.06 82.95			75.21 77.01 88.97 90.56			69.46 78.53 81.52		
		4.4.4.4.4. 28.69.64 4.68.69			3.99 2.44 4.49 4.49			5.88		
**************************************	1.152	283183	1.10	1.26 1.26 1.66 1.66 1.87	1.49	0	448	1.07	1.37	1.59
7.2	8.0 8.9 9.1	7.7		9.55 9.79 10.85 11.24	13, 13	0		3.25	8.13	9.11
76.0 78.3 84.0 77.7 83.5	74.8 77.0 74.4 76.4	75.5 77.6 84.5 75.5	84.0	73.95 75.83 84.06 71.97 74.54 83.98	68.43 70.07 80.94			52.55 52.55 53.55 53.55 53.55		
14.0 15.0 15.0 15.0	15.0 16.5 14.5 14.5	0044544 0000000	16.0	14.38 14.38 13.94 16.02	16.11 16.49 19.06	01	35.76	31.65	29.34 34.03 37.04	30.10 34.25 38.21
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8765	8767	8835		2018	2274	1088	20//	7706	5282	5286
Same (lower dip heading, 8 feet 84 inches) Same (right entry 10, off Welsh's straight heading, room 13, 9-foot 1-inch cut).	Same (right entry 11, off slope room 15, 94-foot cut).  Same (right entry 3, off slope, room 7, 9 feet 1 inch).	Same (composite of Nos. 8765–8768)	GARRETT COUNTY.	Westernport, 2 miles north of; Washington No. 3 mine a clift of 1,600 feet west of drift mouth, room 2, right entry 6,544-inch cut).  Same (1,700 feet southwest of drift mouth, room 3, left entry 8, 503-inch cut).	Same (run of mine)	SAGINAW COUNTY.		shaft, southeast	Same, Riverside mine (east entry oil main south entry, 37-inch cut).	8t. Charles, Gage No. 1 mine, Saginaw bed (east entry 5, on north entry 4, south side, 43-inch cut).

a Coal bed known locally as the "6-foot,"

Table of chemical analyses-Continued.

		Sample.			Proximate.	nate.			Ω	Ultimate.				Calorifi	Calorific value.	Reference.	ance.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy- gen.	Air- dry- ing loss.	Calo-	British thermal units.	Bul- letin No.	Page of this bulletin.
MISSOURI.																	
ADAIR COUNTY.																	
Kirksville, Rocky Ford No. 1 mine, Bevier bed, (room 3, north entry 1, 300 feet northwest of shaft,	10101	¥	-010	14.85	17	39.73	12.92 15.17	3.56					11.1				562
474-inch bed, 45-inch cut). Same (300 feet northeast of shaft, 474-inch bed, 45-inch cut).	10102	V	20-01	14.79	388	44.61 14.61	14.52						11.0				562
Same (composite of Nos. 10101 and 10102)	10106		ω <del></del> α	14.59	7. 52 7. 52	53.77 39.45 46.19	13.91	7.6.4. 2.6.5.	5.56	56.12	1.09	19.79	11.1	5,700 6,674	10,260 12,013		562
Star No. 1 mine, Bevier bed, 350 feet northwest of shaft (25-inch bed, 24-inch cut).	10100	¥	es → es e		38.27	39.73 46.06	13.51	6.53	5.51	78.50	1.30	9.53	8.9	7,973	14, 351		562
Same (main entry, 250 feet cast of shaft, 24-inch cut).	10099	V	2-101	14.68	986	39.99 46.87	12.97	988					10.7				562
Same (composite of Nos. 10099 and 10100)	10442		m=01	14.40	282	55. 27 40. 17 46. 93	13, 14	6.5.90	5.56	56.43	1.00	18.58	9.8	5,721	10, 298 12, 029		562
Morrow Township, No. 1 mine, Lexington bed (2,000 feet north of drift mouth, 40-inch bed, 31-inch	10079	V	⇔⊢α:	16.11	8228	55.44 38.79 46.24	9.03	3.14	5.47	77.88	1.38	7.97	10.1	7,895	14,211		563
Same (2,100 feet northwest of drift mouth, 45-inch bed, 36-inch cut).	10080	V	m 01 0	15.42		51.81 38.90 45.99	11.00	4.19 3.98 					9.2			:	563
Same (2,000 feet northeast of drift mouth, 45-inch bed, 36-inch cut).	10077	¥	2-101	15.59	172	35.96	13.70	4.82.4					9.3				563
Same (composite of Nos. 10077, 10079, and 10080).	10081	V	2-010	15.36		38.86 45.89 1.89	10.99	4.83.41	4.93	57.09	1.12	21.52	9.5	5,811	10,460		563
Nineven Township, No. 1 mine, Bevier bed (1,050 feet south of drift mouth, 46-inch cut).	10086	¥	2400	15.29	33.11 39.09 47.49	22. 73 36. 62 43. 23 52. 51	14.98 17.68	5.64.4. 64.12 	70.0	16.77	F. 7.	80	10.0	060 ( )	14, 202		563

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14, 407 12, 409 12, 538 14, 534 14, 534 17, 622 14, 567 14, 567
8, 004 6, 868 7, 991 7, 91 7, 976
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8.882428835887858868358868688888888888888888888
16.57 15.99 15.73 16.19 16.19 14.71
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10082 10083 10084 10075 10076 10090
rshaft, 38½-inch cut).  thaft, 45-inch cut).  10082, 10083, and 10078).  Northern No. 21 mine, face, 1,500 feet from eet from shaft, 46-inch 200 feet north of shaft, os. 10075, 10076, and
niles north of, Rombauer No. 3 mine, B bed (1,800 feet north of shaft, 384-inch out) Same  Same (1,300 feet west of shaft, 45-inch cut) Same (composite of Nos. 10082, 10083, and 1 lies southwest of, Great Northern No. 21 n Brite, 44-inch cut).  Same (south face, 1,500 feet from shaft, 46 cut). Same (soof feet east and 200 feet north of shaft, inch cut).  Same (soof feet east and 200 feet north of shaft, inch cut).
ubauer harth of shaft of shaft of shaft of shaft of shaft of shaft face by the shaft of shaft
of, Ron leet no leet we leet of; C leet of;
niles north of, Rombaue bed (1,800 feet north o Same.  Same (1,300 feet west of s Same (composite of Nos. lies southwest of; Great; Bevier bed (south Bevier bed (south Same (west face, 1,200 feut).  Same (west face, 1,200 feut).  Same (soo feet east and 3 44-inch cut).  Same (soo feet east and 1 100 feut).  Same (soo feet east and 1 100 feut).
24 miles north of, Rombau bed (1,800 feet north o Same.  Same (1,300 feet west of Same (1,300 feet west of Same (composite of Nos. 24 miles southwest of; Graat Bovjer bed (south Same (west face, 1,200 feet).  Same (soo feet east and 344-inch cut).  Same (soo feet east and 344-inch cut).

Table of chemical analyses-Continued.

ence.	Page of this bulletin.	566 566 567 567	567
Reference.	Bul- letin No.	25 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
Calorific value.	British thermal units.	11.347 14, 679 11.975 11.975 11.975 11.975 11.639 11.639 11.639 11.639 11.639 11.639 11.639 11.639 11.639	
Calorif	Calo- ries.	8, 5, 8, 8, 8, 13, 15, 15, 15, 15, 15, 15, 15, 15, 15, 15	
	Air-dry-ing loss.	6.9	4.9
	Oxy- gen.	7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.	
	Nitro- gen.	1. 94 1. 25 1. 34 1. 30 1. 30 1. 40	
Ultimate	Car- bon.	68.2.20 68.2.20 68.2.20 65.2.00 65.3.00 65.00	
	Hy- dro- gen.	6. 55 5. 55 6. 55	
	Sul- phur.	665446466460 6656666666	6.93 6.93 7.94 7.83 7.83 7.83
	Ash.	21 22 24 25 25 25 25 25 25 25 25 25 25 25 25 25	14.63 16.44 11.37 12.83
nate.	Fixed car- bon.	%648448846844 6466448848 244488888884 838844888	40.66 45.69 54.68 41.91 47.30
Proximate.	Vola- tile mat- ter.	\$45544584586 \$645845686 \$45558558888888888888888888888888888888	33.70 45.32 39.32 45.74
	Mois- ture.	10. 17 10. 62 10. 72 10. 72 4. 80 8. 33	11.01
	Con- di- tion.		-010-010
Sample.	Kind.	4 4 4 4 4 0	< <
02	Lab- ora- tory No.	9983 9984 9993 1041 1126	10166
	Locality, bed, etc.	MISSOURI—Continued.  AUDRAIN COUNTY.  Nandalia, sec. 5, T. 52 N., R. 5 W.: Standard mine, 2-foot.44-inch cut. Same (west, wall, 500 feet from shaft, 2-foot.44-inch cut).  Same (north face, 800 feet from shaft, 2-foot.42-inch cut).  Same (composite of Nos. 9982-9984)  BATES COUNTY.  New Home, New Home No. 1 mine, cast cutry 1 (room 18, 52-inch cut).  Same (bottom of slope, 5-foot 2-inch cut)  Same (run of mino).	Hamilton, Gomer Township, Caldwell No. 1 mine, Bevier bed (southwest face, 1,200 feet from hoisting shaft, Beliach cut).  Same (south face, 1,500 feet from hoisting shaft, 18-inch cut).

567	568	568	568 569 569 569
11, 003 12, 463 14, 526		10,456 12,195 14,278	111,079 14,495 16,779 10,779
6, 163		5, 809 6, 775 7, 932	6, 988 8, 983 8, 983 8, 988 6, 988 7, 973
7. 4. 7. 4.	11.1	11.8	# 8 8 6 7 1 8 9 9 5 1 1 1 S
15.56 6.51 7.59		8.30 9.72	17. 16 7. 44 8. 57 18. 65 8. 83
1.16		1.15	20.00 m
60.40		58.10 67.76 79.33	80.37 80.37 80.37 80.37 83.16
5. 51		5. 67 4. 77 5. 58	15 4 10 10 10 10 10 10 10 10 10 10 10 10 10
4.6.64.6.6 4.0.7.8.8.9 6.29 6.29	9.649.82 9.498.82	088488 58848	94483838252182 58382528282854
11.85 13.36 12.64 14.20	12.05 14.08 12.39 14.45	12. SS 15. 10 12. 51 14. 59	11. 45 11. 15. 15. 15. 15. 15. 15. 15. 15. 15
42.23 47.60 54.94 41.37 46.48 54.17		39.65 46.47 54.73 39.94 54.58	28884848888888888888888888888888888888
33.04 35.06 45.06 83.32 83.33 83.33	88.89.89 89.89.13 89.89.93	45.23 38.23 45.27 45.83 45.43 45.43	######################################
11.29	14.42	14.68	13.36 12.58 11.56 11.91 14.17 13.99 13.99
	-00-00	2-00-00	напримента партавнавная
< <	4 4	4 4	4 4 4 4 4 4 4
10168	10221	10219	10153 10151 10152 10161 10350 10355
Same (south face, 1,300 feet from hoisting shaft, 18-inch cut).  Same (composite of Nos. 10166-10168)	Missouri City, Missouri City No. 1 mine, Loxington bed (west face, 1,500 feet from shaft, 22-ineh cut).	Same (west face, 1,800 feet from shaft, 22-inch cut). Same (composite of Nos. 10219-10221)	Trenton, † mile south of, Trenton No. 3 mileo, Teenton, † Tebe (vest face, 500 feet from shaft bottom, 18-inch cut).  Same (500 feet from hoisting shaft, 18-inch cut).  Same (north face, 500 feet from hoisting shaft, 18-inch cut).  Same (composite of Nos. 10151-10153)  Windsor, Bowen No. 4 mine, Bowen bed (east face, 800 feet from shaft, 60-inch cut).  Same (600 feet northwest from shaft, 60-inch cut).  Same (west face, 800 feet from shaft, 60-inch cut).  Same (west face, 800 feet from shaft, 60-inch cut).

99500°—Bull. 22—13——9

Table of chemical analyses-Continued.

570 570 570	570	571	571	176	571	173
10,696 12,487 14,368	10.330	11,794	10, 373	14, 357 10, 957 12, 321		10, 232 11, 819 14, 156
5, 942 6, 937 7, 982	5.739	8, 093	5, 763	6,087 6,845	en 'c	5, 684 6, 566 7, 864
6.5	6.9	11.11	10.2		10.3	9.8
19.36 7.70 8.86	17.30	8.85 8.85	20.61 8.63	10,16		20.20 9.53 11.43
1.24		90	1.01	1.40		1.13
59. 16 69. 07 79. 48	56.63	79.86	56.68	78. 44		55.83 64.50 77.25
5. 68 5. 50 5. 50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5.88	5.64	5. 51		5.62 4.77 5.71
8. 12. 2. 1. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	: 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	18.48.49.84.48 18.19.89.89.99.99.99.99.99.99.99.99.99.99.99	**************************************	4458881 4458881		+ 4 6 6 6 4 6 6 6 8 6 6 6 6 6 6 6 6 6 6 6
11.33 13.10 11.22 13.10 15.78 16.78	20.88 23.81 13.33 15.25	19.04 12.70 14.85 13.64 16.06	12.08 14.08 12.82 15.07	13.80 15.55 13.30 14.96	13.79 15.98 14.17 16.43	15.02 17.37 14.29 16.51 16.91 19.12
41. 29 54. 92 54. 92 47. 99 47. 99 42. 21	25.45.45.8 25.25.25.25 25.25.25.25 25.25.25 25.25.25 25.25.25 25 25 25 25 25 25 25 25 25 25 25 25 2	251.35 26.73 26.73 26.54 27.02	46.92 46.97 41.00 48.19	25.74 46.76 39.77 72.72	25.70 255.64 255.75 255.64	29.65.83 29.88 29.88 25.72 25.72 25.72 25.81
33.39.18 33.33.33 34.4.77 39.52		38. 15 33. 15 38. 15 38. 15 36. 92 36. 92	33.41 38.95 31.26 36.74		32.27 32.27 32.83 32.83 83 83.83 83.83 83.83 83.83 83.83 83.83 83.83 83.83 83.83 83.83 83.83 83.83 83 83.83 83 83 83 83 83 83 83 83 83 83 83 83 8	25. 25. 25. 25. 25. 25. 25. 25. 25. 25.
13.48	12.32	14.45	14.23	11.27	13.71	13.53
#0100 #0100 #010	o	- NO - NO - NO	2-22-0	(M-016-01	n — n n – n e	010-010-010 010-010-010
4 4 4	< < <	< <	< <	<b>A A</b>	< <	< < <
10246	10240	10225	10227	1010	10222	10221
Same (face, 600 feet south of shaft, 20-inch cut).  Same (composite of Nos. 10242-10244)	Same (seet from hoisting shaft, 16-inch cut). Same (west face, 1,400 feet from shaft, 18-inch cut).	35 3	Same (5,000 feet east of drift mouth, 20-inch cut).  Same (composite of Nos. 10225-10227)	Summit mine, Lexington bed	Napoleon, 1 mile east of; Independence mine, Lex- ington bed, 1,400 feet south of hoisting shaft, 18-firch cut). Same (1,400 feet from shaft, 18-inch cut)	Same (1,200 feetfrom hoisting shaft, 18-inch cut).  Same (composite of Nos. 10222-10224)  Waverly, Buckhorn mine, Waverly bed, (west entry 1 off main south entry, 700 feet from shaft, 46-inch cut).

Table of chemical analyses—Continued.

ence.	Page of this bulletin.	572 572 572 572 572 572 572	573
Reference.	Bul- letin No.		## ## ## ## ## ## ## ## ## ## ## ## ##
Calorific value.	British thermal units.	10.54 11,888 14,476 10,757 10,757 11,769 11,364	11,185 13,118 14,436 10,179 11,502 14,207
Calorifi	Calo- ries.	6, 8, 8, 8, 6, 6, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10	6,214 8,228 8,020 8,020 5,885 7,893 8,332
	Air- dry- ing loss.	7.7 7 9.8 8.6 9.2 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	5.0
	Oxy- gen.	14.170 6.286 7.170 8.296 8.388 8.998	17.11 7.79 9.62
	Nitro-gen.	26.1.1.1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	2.0.1.1.3.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4
Ultimate.	Car-	6.55 6.59 6.50 6.50 6.50 6.50 6.50 6.50 6.50 6.50	54.79 61.91 76.48
	Hy- dro- gen.	5.5.4.5.5.5.5.2.2.5.5.5.5.4.5.5.5.5.5.5.	74.7.7. 24.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2
3	Sul-	7%054794479888444988884 68854788748885888 6885488874888	674.4.8.4.7.7.7.7. 674.6.8.4.7.7.7.7. 674.6.8.4.7.7.7.7.
	Ash.	15.38 17.22 17.22 15.46 17.64 17.73 10.69 10.69 11.58	9. 13 9. 13 10. 66 12. 24 16. 86 19. 05
mate.	Fixed carbon.	494864486844846848564888428888888888888888	52.50 52.50 53.50
Proximate.	Vola- tile mat- ter.	28449848942848949884 26524488888848998875488	88.8.9.4.4.8.8.9.9.9.9.9.9.9.9.9.9.9.9.9
	Mois- ture.	10.71 12.36 11.40 11.40 15.94 14.27 16.31	12.90
	Con- di- tion.		-88-48-48-48-48-48-48-48-48-48-48-48-48-
Sample.	Kind.	4 4 4 4 4 4	< < 0
502	Lab- ora- tory No.	10341 10352 10228 10229 10234	1226
	Locality, bed, etc.	MISSOURI—Continued.  LAFAYETE COUNTY—continued. Same (cast entry 2 off main south entry, 600 feet from shaft, 46-inch cut).  Same (main east entry, 1,000 feet from shaft, 49-inch cut).  Same (composite of Nos. 10340–10342)  Wellington, 24 miles west of; Labor Exchange Branch No. 365 mine. Lexhington bed (southwest face 1,200 feet from shaft, 20-inch cut)  Same (1,100 feet south of shaft, 20-inch cut)  Same (southeast face, 1,500 feet from shaft, 18-inch cut)  Same (composite of Nos. 10228–10230)	Bevier, 1 mile south of; No. 8 mine, Bevier bed (east entry 1, north side, 58-inch cut).  Same (west entry 2, south side, 63-inch cut)  Same (run of mine 32 tons)

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574	574	574	574	574	574	:	575	575	575	575	576	576	576	576	576
				332	332	332								261 48	261 48
			10,625	14, 290	10,582	14, 501 9, 099 10, 733 14, 157	14,713			10,964	14,341		11, 234 12, 911 14, 422	11, 605 13, 390 14, 551	
			5,903	7,939	6,950	7,963 7,863	3,207			6,091			6,241 7,173 8,013	6, 447 7, 439 8, 084	
10.3	12.1	11.3	11.2	8.5	80	13.7	oo .	8.9	တ်	8.7	7.9	9.6	ος ος	7.4	6.0
			22.14			20.54 8.27 10.89				20.36			18. 48 7. 96 8. 89		
			1.05	1.4		84	L. 33			1.06			1.03		
			58. 25			49. 45. 76. 88 76. 88	SI. 30			59.84			61.59		
			5.75			5.33.02				5. 71			5.76		
3.48	4.8.4.4	1828	4.8.4.	25.44.7	. 6. 4. 1 . 6. 64 i	5.74.35							5. 4. 4. 62 2. 62 5. 16	5.06	5.00
9, 93	10.69	8.84	9, 40	8. 70 10. 27	11.61	20.50	9.53	8.80	10.71	9. 71	9,48	9.91	9.12	6.91	6.15
						37. 95 44. 77 59. 05							48.70 43.48 48.57	42. 03 48. 50 52. 70	42.17 47.15 50.63
						26.32 31.05 40.95							51.30 40.06 46.04 51.43	37. 72 43. 53 47. 30	41.11 45.97 49.37
16.21		16.27	16.25	15.26	15.41	15.23	15.37	14.04	12.99	13.81	12.03	14.41	13.00	13.34	10.57
-010	0-0	) H (1)	240	m → m	n 01	2400	4-101	n ← 01	2-121	212	m-00	o 01	m → m	-000	-000
V	4	4	V	4	4	Ö	4	<	V	4	4	4	4	4	<
8866	6866	0666	1666	4196	4197	4257	10101	10192	10193	10201	9985	9866	2666	1446	1447
14 miles southeast of; No. 9 shaft, Bevier bed (east face, 2,200 feet from shaft, 49-inch cut).	Same (south face, 1,700 feet from shaft, 36-inch cut).	Same (1,300 north and 400 feet west of shaft, 55-inch cut).	Same (composite of 9988–9990)	24 miles south of; Central No. 61 mine, Bevier bed (4,000 feet south of shaft, 49-inch cut).	Same (2,500 feet west of shaft, 5-foot 7g-inch cut).	Same (through 3-inch screen)	Same (east main entry, 3,500 feet from shaft, 44-inch cut).	Same (east entry 10, off main north entry, 4,000 feet from shaft, 44-inch cut).	Same (main south entry, 4,500 feet from shaft, 44-inch cut).	Same (composite of 10191-10193)	Macon, east edge of town, sec. 16, T. 57 N., R. 14 W., Home mine, Mulky bed (west face, 80 feet	Same (east face, 80 feet from shaft, 24½-inch cut).	Same (composite of Nos. 9985 and 9986)	Barnett (Morgan County), 6 miles northeast of, about 11 miles southeast of Versailles, sec. 6, T. 42 N., R. 15 W., act side of prospect pit, poek-	et bed. Same

Table of chemical analyses—Continued.

			T															2
	SS	Sample.			Proximate.	nate.			P	Ultimate				Calorifi	Calorific value.	Reference	ence.	
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul- phur.	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this buller tin.	ANAL
MISSOURI—Continued. MILLER COUNTY—confinued.																		YSES O
Barnett, prospect pit—Continued. Same (run of mine, 10 tons)	1516	Ö	H004	12.67	41. 45 47. 46 50. 24	41. 05 47. 01 49. 76	4.83	5. 12 5. 86 6. 21	6. 18 5. 46 5. 78 6. 16	66.87 76.57 81.05 86.42	0.69	16.31 5.79 6.12 6.53	7.7	6, 937 7, 944 8, 408 8, 816	12, 487 14, 299 15, 134 15, 869	261	• • •	F COALS
Rendota, Mendota mine, Mendota (Mystic) bed, screenings through 14-inch bar sereen, 7 tons.	1549	Ö	1004	15.71	28.62 33.95 45.07	34.89 41.40 54.93	24.65	3,69	5.23 5.48 5.48	48.87 57.98 76.95 81.70	. 82 . 97 1. 29 1. 37	20.61 7.89 10.47 11.11	10.8	4, 911 5, 826 7, 732 8, 071	8,840 10,487 13,918 14,528	261	* * * * * * * * * * * * * * * * * * * *	IN TH
RANDOLPH COUNTY.  Higbee, No. 7 mine, Bevier, 463-inch bed (3,400 feet	2795	4	-0	13.38	34.17		10.02	5.17					10.8	6,158	11,084	332	576	E UI
Same (5,000 feet north of shaft, 412-inch cut)	2796	4	m ≠01 m	13.89	44.61 33.36 38.74 44.73	55.39 41.23 47.88 55.27	11.52	5.85 4.87 5.87					11.5	8,039	14, 470	# 25 25 # # 2	576	NITED
Same (run of mine)	2865	Ö		12.92	33. 64 38. 63 45. 79		13.62	5.78	.4.4.0.7 8.4.6.8 8.4.8.8	57.16 65.64 77.81	1.1.9	17.86 7.33 8.68	11.4	5,860 6,730 7,977	10,548 12,114 14,359 15,116	332		STA.
Huntsville, 1 mile east of; No. 3 mine, Bevier, 4-foot bed (900 feet north of shaft, 44-inch cut).	2817	V	*-01	14.01	33. 49 38. 95	42.21 49.08 55.75	10.29 11.97	6.08 6.93	3	3 : : :		3 : : :	11.8	6,128 7,126 8,095	11,030 12,827 14,571	336	577	LES.
Same (4,000 feet southwest of shaft, 373-inch out).	2818	Y	) C1 C	11.38	37. 10 41. 86	48.07	8, 45 9, 53	4.03					% · · ·			330	577	
Same (lump, over 6-inch bar screen)	2904	Ö	2-00	13.80	34, 29 39, 78 46, 05	46.60 53.95	11.74	5.60 6.50 7.52	5.48 4.58 5.74	58.09 67.38 78.01 84.36	1.11	18.13 6.81 7.88 8.51	11.6	5, 998 6, 958 8, 055 8, 528	10, 796 12, 524 14, 499 15, 350	332		

578	578	278	278	578	578	578	578	570	579	579	580	03	280	280	280
T	-	:	:	:											
		•	10,874 12,296 14,627				12,622				10, 771 12, 461 14, 371				10, 229 11, 975 14, 252
			6,041 6,831 8,126				5,901 7,011 7,946				5,981 6,923 7,984				5, 683 6, 653 7, 918
6.7	6.7	6.4	6.6	12.1	10.4	9.9	10.8	9.7	30 13	9.3		10.2	10.8	10.3	10.4
			16.35 6.85 8.15				21.61 8.96 10.16				19. 89 9. 07 10. 47				8.20 9.75
			1.30				1.28				1.01				1.16
			58. 50 66. 16 78. 70				58.62	10.01			58. 16 67. 29 77. 60				56.03 65.59 78.06
			5. 42 4. 67 5. 56				22.4.2	OF '0			7.4.75 7.70 7.70 7.70				5.62
4. 67 5. 31 6. 42	5.57	24.4.6	4.7.9 82.8 82.8	2.94		3.82	2000 2000 2000 2000 2000 2000 2000 200	388	7.69.4. 2.69.4.	188	9.4.4.4.5 9.8.2.8.0	3.45	4.8.4.	4.4.7. 8.2.8.	25.4.0. 25.4.0.
15.18	14.73	12.38 14.03	14.09	10.36		9.83	9.91	11.94	11.41	11.28	11. 49	12.00	12.81	15.81	13.64
40.01   45.50   54.99	40.48	55.30 41.55 47.07	41.73 47.19 56.14	41.52	56.49 40.56	25.04 40.89 48.69	55.14 41.46 49.26	39.62 46.12	53.57 40.18 56.64	40.51	53.92 40.66 47.04 54.25	40.35	40.84	56.32 38.33 44.61	54. 67 40. 48 47. 39 56. 39
32.74 37.24 45.01	32.72	38.34 38.34 38.39 39.39	32. 60 36. 87 43. 86	31.98			44. 86 32. 80 38. 97				34.29 34.29 35.67	32.23	37.	36.13.	45.33 31.30 36.64 43.61
12.07	12.07	11.73	11.58	16.14	16.26	16.01	15.83	14.09	13.66	13.60		14.86	14.64	14.07	14. 58
es es	-12	m → 01 c	o-0100	-	200-0	40m0	100-01	m = 0	100-01	m = 01	m → 61 c		m = N	8-8	
4	4	٧	<b>V</b>	٧	٧	4	4	V	V	4	4	4	<	4	<
10180	10181	10182	10183	10206	10201	10208	10217	10194	10195	10196	10200	10197	10198	10199	10235
Ryder (Prairie Township), 4 miles east of Higbee, sec. 14, T. 52 N. 78, 14 W., Jones No. 1 mine, Bavier bed (southwest face, 75 feet from	hoisting shalf, 434-inch bed, 42-inch cut). San fam on try, 75 feet southwest of shalt	Same (60 feet southwest of shaft bottom, 42-inch cut).	Same (composite of Nos. 10180-10182)	RAY COUNTY	Same (900 feet west of shaft, 194-inch cut)	Same (1,200 feet west of shaft, 194-inch cut)	Same (composite of Nos. 10206-10208)	Richmond, sec. 23, T. 52 N., R. 27W., No. 50 mine,	cut). Same (100 feet north of shaft, 28-inch cut)	Same (125 feet east of shaft, 28-inch cut)	Same (composite of Nos. 10194-10196)	3 miles southwest of; sec. 12, T. 51 N., R. 28 W., No. 2 mine. Lexington bed (800 feet north	of shaft, 30-meh bed, 28-meh cut). Same (800 feet northwest of shaft, 28-inch cut)	Same (cast face, 400 feet from shaft bottom,	Same (composite of Nos. 10197-10199)

Table of chemical analyses-Continued.

Sample.
Lab- ora- tory No.
10125 A
10126 A
10143 A
_
3665 D
563D A
564D A
662р С
3619 B
5819 B

585	582	583	Z Z	581	584	585	585	585		585	586	586	586	
316	316	341	341	341	316	332	310	<b>3</b> <del>2</del> <b>3</b>	333	:	341		332	######################################
	11, 191 12, 445 13, 338	13, 500	11, 140 13, 039 10, 883	13,284	13, 138			10,037	13,973 10,685 11,686 13,689	13, 756	10,285		13, 639	10,478 11,452 13,768 13,844
::		6,018						5,576	5, 986 6, 492 7, 665	7,642	-	6.69.7	- : :	5, 821 6, 362 7, 649 7, 691
2.1	2.0	4		5.5	2.6	3.1	3, 2	x x	1 %	3.7	3.7	01	3.6	3.3
		25.22.88							13.88 13.88 13.88 13.88		20.66			18.99 15.01 15.14
	1.56	5428	11111	11.73	1.64			1.07	1.27	1.37	1.01	1.37		1.20
		55.88 57.88 57.88 57.88 57.88						57.05	78.03 77.04 77.34	77.91	56, 19			58. 96 64. 44 77. 48 78. 09
		00.4.0.1 88849							2.0.4.0. 12.0.4.0.		6.09			4.96 4.38 5.27 5.31
3, 02	2482	11.53	12823	10101 10101	888	888	5.28	38.8	4.2.8.8	55.	382	293	826	76 60 79
11.74	6.69		14.56 14.56		6.42	8.20	18, 18	13.35	13.39	9.76	16.42	18.73	10.72	15.39
	51.46.75 51.93 55.65	51.35	47.57 47.57 47.19	56.73	56.65 47.10 52.10	85.55 87.05	14:28 14:38 14:38 15:38 16:38	52.73	62.51 49.97 58.54					58.39 44.52 48.66 58.50
	45.55 41.38 41.38	35.92 39.77 43.65	37.87 31.32 31.74	34. 99	28.83 28.83 38.83	37.92 37.93 12.93	34.38	3.6.93	4.35.36 4.35.36 4.36.39					31.58 34.52 41.50
8.97	10.05	9.67		8.74	9.60	8.70	8, 47	14.83	8.56	9.58	9.76	7.01	8.93	8.51
	m → 03 m ·	4-cim-	-010-0	10 - C1	m — cz c	m 01 :	m = 61 c	2-01	m – 01 m	<b>₩</b> = 010	n 01 c	D 10 10 00 00 00 00 00 00 00 00 00 00 00	n → 01	n → 01 m →
n	<b>m</b>	<b>A</b>	n m	<b>m</b>	<u>m</u>	<	<	~	0	A	<b>E</b>	E	<	Ö
4007	3620	5820	5823	5821	4008	3956	3955	5495	4271	3684	5508	6314	3954	4534
1 mile south of, Foster Gulch mine, No. 3 bed, 72-inch cut.	1 mile west of; NW. \( \frac{1}{2} \) sec. 6, T. 8 S., R. 21 E., No. 2 bed, 96-inch cut.	13 miles west of; Bear Creek mine, see, 6, T. 8 S., R. 21 E. (No. 2 bed, breast of main heading, Gainch entry, 2 bed, box of the wine for the way of the control of the con		2 miles west of; Washoe No. 1 mine, sec. 1, T. 8 S., R. 20 E., No. 1 bed, 5½-footcut.	34 miles south of, on Taggart Gulch, SE, 4 sec. 20, T. 8 S., R. 21 E., Nelson mine, No. 2 bed,	Bridger, 14 miles northwest of, Bridger mine, SW. 4 SW, 4 see, 17, T. 6 S., R. 23 E., Bridger mine,	Same (northern part of mine, poor coal, excluded).	Same (5,000 feet in mine, 42-inch cut)	Same (run of mine)	Same	Coalville, 1 mile west of; NW. 4 sec. 18, T. 5S., R. 23 E., Gebo No. 2 mine, Bridger bed, 1,000 feet in	Dean, about 5 miles northwest of, S.B. 4 N.W. 4 sec. 28, T. 4 S., R. 16 E., Albertson mine (face of	Fromberg, I mile west of, McCarthy No. 2 mine, Bridger (lignite) bed, 58-inch cut.	Same (run of mine)

Table of chemical analyses—Continued.

Reference.	Page of this bulletin.		587	587	587	282	285	282	282	587			588
Refer	Bul- letin No.			316	316	316	316	316	316	341	261		316
Calorific value.	British thermal units.		0 0 0 0 0 0 0 0 0 0 0 0	9,787	12, 940					4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10,539 11,848 13,514	13,730	10,881 11,277 14,134 14,648
Calorif	Calo- ries.			5, 437 6, 157 7, 123	, 192						5,855 6,582 7,508	7,628	6,045 6,265 7,852 8,138
	Air-dry-ing loss.		4.0	4.7	5.6	4.0	4.4	4.0	4.2	3.9	2.2		1.6
	Oxy- gen.		0 0 0 0 0 1 0 0	25.05 16.60 19.20	19.48						21. 52 13. 16 15. 00	15.35	10. 44 7. 58 9. 50 9. 99
	Nitro- gen.			1.20	FC .T						1.33	1.74	88. 93. 88.
Ultimate.	Car-		6 0 0 0 0 0 6 0 8 0	55.46 62.80 72.66	13.01						59.08 66.42 75.76	77.48	61. 51 63. 75 79. 90 83. 97
a	Hy- dro- gen.			5.26 4.48 5.19	97.70						5.37	5. 43	4. 13 3. 88 4. 86 5. 11
	Sul-		.71	1.05 1.19 1.38	2.39	24.2	1.59	3888	2.11	2.23	2.25 2.22	:	3.74
1	Ash.		16.74 18.36	11.98	9.96	11.40	10.41	6.97	13.02	10.04	10.97		19.50
nate.	Fixed carbon.		43.84	58. 88 40. 19 45. 51 52. 65	42.51	43.26 48.75	25. 94 44. 04 49. 67	51.12 51.12	45. 32 45. 32	43.02 10.02	54. 18 42. 08 47. 31 53. 97	-	50. 60 52. 44 65. 72
Proximate.	Vola- tile mat- ter.		30.61	41. 12 36. 14 40. 92 47. 35	33.46	38.40	38.25 38.25 50.25	36.43 41.03	45. 55 35. 98 40. 15	46.98 36.39 40.68	45.82 35.90 40.36 46.03	:	26.39 27.35 34.28
	Mois- ture.		8.81	11.69	14.07	11.26	11.33	11.22	10.38	10.55	11.05	:	3.51
	Con- di- tion.		122	m 01 m -	4-01	n = 01	2000	2-010	2-101	20-03	n = 01 m =	4	H01004
Sample.	Kind.		¥	В	В	В	В	В	, m	В	Ö		р
02	Lab- ora- tory No.		3683	3590	3592	3588	3595	3591	3593	3594	1298		3515
	Locality, bed, etc.	MONTANA-Continued.	CARBON COUNTY—continued. Joliet, 2½ miles southeast of, Joliet mine, Bridger bed	Red Lodge, sec. 27, T. 7 S., R. 20 E., Northwestern Improvement mine, east side of Rock Creek (No. 1 bed).	Same (No. 13 bed, room 31, 1,600 feet from main entrance, 250 feet north of tramway).	Same (No. 2 bed, 1,600 feet from main entry)	Same (No. 4 bed, 350 feet west of drift 5, west level 2).	Same (No. 4 bed, east room 97, 350 feet north, level 5).	Same (No. 5 bed, room 9, west level 4)	Same (No. 6 bed, room 9, west level 4)	Same (washed slack, 21 tons)	CASCADE COUNTY.	Armington, east side of Belt Creek, Belt Creek bed, NE., 4 sec. 36, T. 19 N., R. 6 E., Richardson mine, 464-inch cut.

	589	580	990	591	591	591	591	591	265	593	593	594	594
,	316	316	316	316	316	316	316	316 356	316	316	316	316	316
	9,932 10,985 13,160		10, 121 10, 888 13, 529	13,561	12,438	10,040	12,987	10,472	10, 127		11,007	8,350 12,838	11,153 11,866 13,966
	6, 103 7, 311		5, 623 6, 049 7, 516 7, 636	JU, 10, 10, E	, 4, 4, 9, 6, 6, 910 0, 910 0, 910	1,0,00,	,0,1°,0	0,7,0,00	7,0,00		-	4, 639 5, 336 7, 132	6, 196 6, 592 7, 759
	5.0	67	2.6	2.7	5.4	1.9	73	1.7	20	4.6	2.6	6.0	2.4
	19.37 12.00 14.37		17.09 11.64 14.46	16.29 11.35 14.60	11.28	13.22	13.89 10.64 10.64	12.08 10.67	16.81 9.87 11.85		16.13	21.95 11.88 15.88	14.50 9.76 11.47
	. 89 . 89		40088 40088	1.00	22828	822.28	1.18	1.15	. 79		95	1969	91   97
	58.74 64.97 77.82				47.37 53.15 76.11							49.95 57.46 76.79	63. 61 67. 67 79. 66
	32.56		4. 2. 4. 4. 7. 9. 7. 9. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.		4 8. 9. 4. 4 27. 8. 8. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	6.4.4.7	4.8.4.4 24.8.25 24.8.25	3.23	3.76 4.51			4.8.4. 20.20 7.27	4.46
	2.21		1.80	2.04 2.18 2.80	1.79 2.01 2.88		4. 65 4. 65 5. 51	4.09 5.42 5.42	3.91 4.29 5.14			2.20	2.53
	14.94	18.73	18.14	20.88 22.30	26.88	22.99	15.74	20.07	15.16	19.75	13.78	21.88	14.14
	52.24 57.78 69.21		49.34 53.08 65.95	45.20 48.28 62.13	41.97 47.10 67.44		52.03 55.45 65.81	47.95 50.22 63.60	50.36 55.19 66.19			43.26 49.76 66.50	51. 42 54. 71 64. 40
	23.24 25.70 30.79		25. 47 27. 40 34. 05	27. 55 29. 42 37.87	20.27 22.74 32.56		27.03 28.81 34.19	27. 44 28. 75 36. 40	25.72 28.19 33.81	24.82 27.63	29.50	25.07 33.50	28. 43 30. 25 35. 60
	9. 58	: :	7.05	6.37	10.88	4.82	6.17	4.54	8.76	10.18	7. 49	13.07	6.01
	-01004			·=000	*-007			# O1 00 T	*=010	-010			
	m 	B	m	В	д	Д	m	В	g	m	д	д	g ,
	3755	3513	3512	3514	3754	4118	4117	4114	3759	3758	4119	3757	4115
	West side of Belt Creek, SE. 4 SW. 4 sec. 36, T. 19 N., R. 6E., Hill mine, a 75 feet from mouth, 38-inch cut.	Belt, east side of Belt Creek, SE. 4 NE. 4 sec. 26, T. 19 N., R. 6 E., Millard mine, a 64-inch cut.	West side of Belt Creek, S.E. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 26, T. 19 Nv., B. 6 E., Anaconda mine a (entry 18, 58-inch cut.)	Same (south entry 9, 53-inch cut)	14 miles north of; east side of Belt Creek, NE. 4 sec. 23, T. 19 N., R. 6 E., Orr mine, a main entry, 500 feet from mouth, 49-inch cut.	Eden, 2 miles northeast of, north side of Ming Coulee, Belt Creek bed, NW. 4 BE. 4 sec. 32 T. 18 N. R. 4 B. Bickeft mine 85-inch cut.	6 miles southwest of; east side of Smith River, NW. 4 NW. 4 sec. 20, T. 17 N., R. 3 E., Patterson mine, a 55-inch cut.	8 miles southwest of; west side of Hound Creek, SW. 4 SE. 4 sec. 24, T. 17 N., R. 2 E., Carville mine, 60-inch cut.	Geyser, about 7 miles southwest of, on west side of Otter Creek, Belt Creek bed, NW. 4 sec. 29, T. T. N. N. 19. E., Nollar mine, 175 feet from	About 7½ miles southwest of; SW. ‡ NW. ‡ sec. 3, T. 16 n. R. 9 E. Meredeth mine, 50 feet from month. 43-inch cut.	Sand Coulee, 1 mile south of; west side of Straight Coulee, tributary to Sand Coulee N.E. 4 sec. 23 T 19 N R 4 E Garbor mine N.		Stockett, NW. 4 NW. 4 Sec. 86, T. 19 N., R. 4 E., Cottonwood mine, a 88-inch cut.

a Belt Creek bed.

Table of chemical analyses-Continued.

nce.	Page of this bulletin.		595	595	969	296	262	269	298	298	599	599	009
Reference	Bul- letin No.		381	381	381	381	381	381	381	381	381	381	381
Calorific value.	British thermal units.		9,563	13, 343 9, 598 10, 915	12, 564 9, 938 11, 673	12, 614 8, 433 10, 936	12,386 7,673 10,044	12,002	8,572	12, 471 8, 937 11, 371	12,839 8,654 11,016	12, 776 7, 798 10, 163	8,442 11,513 12,710
Calorifi	Calo- ries.		5,313	7, 413 5, 332 6, 064	6,980 5,521 6,485	7,008 4,685 6,076	6,882 4,263 5,580	6, 668	4, 762 6, 193	7,095 4,965 6,317	4, 808 6, 120	7,098 4,332 5,646	6,898 6,396 7,061
	Air-dry-ing loss.		∞ ∞	5.5	5.6	12.0	14.2	10.3	12.1	14.7	11.8	14.9	18.5
	Oxy- gen.		26.22	15.72 25.80 17.14	19.73 -28.36 17.79	19.23	34.83	21. 66		31.41	17.79 31.28 15.56	18.06 33.95 17.29	36.19 17.02 18.79
	Nitro- gen.		1.14	0.71	1.00	1.08	98	1.53		1.22	1.09	1.61	1.24
Ultimate	Car- bon.				73.11 58.56 68.78		45.62 59.71	71.35					71.29 49.23 67.13 74.10
n	Hy- dro- gen.		5.58	5.17	5.18	4.78	3.85	4.60				4.94 5.80 4.18	
	Sul-		1.19	99.6. 98.6.	1.05	. 58	25.55		. 73	28.27.	\$ 50. 20. 20. 20.	.94	1.03
	Ash.		11.50	11.54	6.36	9.03	12.46	11.44	9.77	8.99	10.83	13.74	6.90 9.41
mate.	Fixed carboon.		43.78	61. 10 41. 68 47. 40	54.56 44.20 51.92	56.11 39.32 50.99	57.75 37.23 48.73	58.23 39.27 49.38	57. 68 40. 50 52. 67	60.34 41.60 52.93	59.77 41.14 52.36	60.74 33.12 43.16	52. 58 40. 02 54. 57 60. 24
Proximate	Vola- tile mati- ter.		27.89	38.90 34.71 39.48	45. 44 34. 58 40. 61	43.89 28.76 37.30	42. 25 26. 71 34. 96	41.77 28.81 36.23	26. 62 34. 62	35.00 35.00 35.00	3.55 3.52 3.52 3.53	39.26 38.93	26. 41 36. 02 39. 76
	Mois- ture.		16.83	12.07	14.86	22.89	23.60	20.48	23.11	21.41	21.44	23. 27	26.67
	Con- di- tion.		H-01	m → 01	m=01	8-8	m – 01	≈=0:	20 - 62	8 H 81	m + 01	20-03	m=0109
Sample.	Kind.		A	æ	a	В	m	m	B	8	m	д	m
02	Lab- ora- tory No.		8622	6550	6099	6316	7156	6317	6319	*9150	6318	6380	6381
	Locality, bed, etc.	MONTANA—Continued.	Ada, 24 miles southeast of; NE. 4 SE. 4 sec. 5, T. 30 N., R. 18 E., Gibbitts (Tiger Ridge) mine, 60 feet	South of opening, 28 inch cut.  Big Sandy, 6 miles esat of Mackton mine, NW. 18W. 1  Soc. 18 T. 28 N. R. 14 E. Big Vein bed. 155	feet from mouth, 8 feet 14 inch cut.  64 miles est of, Mack mine, NE. 4, Sec. 18, T. 28.N., R. 14 E., 20 feet north and 200 feet	off main entry west, 44-foot cut. Chinook, 4 miles west of; Sands & O'Keefmine, NW. 4	entry, 77-inch bed, 61-inch cut. 6 miles northwest of; see. 29, Tv 34 N., R. 19 E., outcrop, Leabos mine, 4-foot cut.	7 miles south of; NW. ‡ SW. ‡ sec. 30, T. 32 N., R. 20 E., Kerr mine, 240 feet in, 34-foot bed, 35-	9 miles south of; SW. ½ NW. ½ sec. 5, T. 31 N., R. 19 E., Roder mine, 125 feet in, 55-inch bed,	38-inch cut. Same (150 feet in mine), 63-inch bed, 514-inch cut.	About 6 miles southwest of; Tumbler prospect, about 280 feet from mouth, 64-inch bed,	59-inch cut. About 4 miles northeast of; Matheson prospect, about 65 feet from mouth, 59-inch bed, 48-	Inch cut. About 63 miles north of; Leabo prospect, about 45 feet from mouth, 60-inch bed, 40-inch cut.

600	100	109	100	602	602	603	603	603	604	604	605		909	909	909	607	7(8)
381	381	-	381	381	381		381	381	381	381	381		316	316	341	341	316
6,914	11, 900 8, 172 10, 769	12, 465	12,541	8, 417 10, 663	7,898	12, 169	7,475	7,853	7,835	8,293	8,244 10,467				7.668	7, 481	12, 091
3,841	6,611 5,983	6, 923 5, 852 6, 852	6,967 7,847 7,847	5, 924 5, 924	5, 388	6,205	5, 1253	5,558 2,558 3,558	6,147	6,49	6, 801 6, 815 6, 747				6,018	9,4,3,0	* cc '0
19.3	16.0	18.0	15.5	14.1	16.3	t- +	13.6	2.2	9.59	14.2	12.9		25.6	20.3	15.4	18.1	21.9
40.30			5488 5488							35.85							
.80	1.37	1.13	1.38	04.7					1.33	1.38	1.53						
40.39			51.2 51.3 51.3 51.3 51.3 51.3 51.3 51.3 51.3							14.8							
5.53		5.80	864-	7					6.39	199	8 : :						
1.08	98.1	1.17	837.9	55.83	28.29	27.7.	388	25.23	1289	32.23	25.28		888	188	8658		28.8.9.
11.90	10.33	12.06	10.34	10.81	13.24	9.42	18.55	13.66	6.74	9.77	10. SS 13. 81	:	11.28	7.58	9. 19	10.03	7.93
											86.88						31.34 44.93 50.70
40.10	89.05 26.58 35.03	27.90 37.04	30.50	38.38	29.31 37.99	17.45	33.38	29.28 37.30	26.67 37.66	27.96	4.58.4 3.48.8	30					45.25.88 45.88 85.28
30.00	24. 12	24.67	21.96	21.07	22.84	8.41	18.97	21.51	29. 19	25.59	21.2		33. 53	28. 47	29.21	29.60	30.25
- 03	10 H 20	20 - C3	m → 01 :	2-030	D — 03 0	2-010	o ← 01 0	n 01 0	20 - C1 C	0 01	25 to 10 to		-010	rs es :	m — ea e	:0 → 01 c	2-010
8	=	2	8	2	22	2	2	=	=	=	~		=	2	13	B	m
6315	6474	6801	6479	6475	6473	6476	6477	6548	6478	6640	6549		2426	2429	5783	5964	2425
Harlem, 10 miles northwest of; McDaniels mine, 175   feet in, 304-inch bed, 25-inch cut.	Havro, 14 miles north of; Alcott mine, 120 feet in, 571- inch bed, 374-inch cut.	Same (100 feet from entrance)	14 miles northwest of; Havre mine, 565 feet in, 69- inch bed, 30-inch cut.	35 miles northwest of: Kinney mine, end of main ontry, 31-inch bod, 24-foot cut.	4 miles southwest of; Electric mine, 125 feet from ontry mouth, 43-foot bod, 34-foot cut.	4 miles southeast of, SW. 4 Sec. 36, T. 32 N., R. 16 E., on Bull Hook Creek, prospect, 7-inch	7 miles cast of, Brown mine (abandoned), 65 feet in, 64-inch bed, 59-inch cut.	7 miles northwest of: Barrott's mine, 250 feet in, 4-foot bed, 3½-foot cut.	Smiles southeast of; NE. 4 sec. 4, T. 31 N., R. 17 E., Staton's mine, 250 feet in, 695-inch bed, 595-		12 miles northwest of; Schenn prospect, 75 feet from mouth of entry, 57-inch bed, 34-foot cut.	CUSTER COUNTY.	Fallon, bank of Yellowstone River, T. 13 N., R. 52 E., Gifford mine, from outcrop, 43-foot cut (sample	West bank of Yellowstone River, at mouth of ('ottonwood Creek, 64-footent, in outcrop (fresh).	Wiles, 1 mile north of: sec. 22, T. 8 N., R. 47 E., 150 feet from entrance, Kircher bed (461-inch cut).	5 miles northeast of, SE. 4 sec. 19, T. 8 N., R. 48 E., Kircher mine, Kircher bed (5-foot cut),	Same (Leonard sample, 1905, 200 feet from ontrance).

Table of chemical analyses—Continued.

		ISES UI										
ence.	Page of this bulletin.		209	809	809	609	609	609	610	610	610	610
Reference.	Bul- letin No.		316	341	341	341	316	316	316	316		316
Calorific value.	British thermal units.		6, 662 9, 400	10,946	6,363 9,866	7,341	12, 485			7,090	12, 172 6, 692 10, 087	11, 257 6, 984 10, 726
Calorifi	Calo-		3, 701 5, 222 6, 628	6,081	3,535 5,481	6, 654 4, 078 5, 975	0, 930				6,762 5,718 5,604	6, 254 3, 880 5, 959
	Alr-dry-ing loss.		16.5	14.0	22.9	20.0	14.8	22.3	27.4	15.5	13.5	14.2
	Oxy- gen.		38. 19 17. 35							42.13	23.23	25.77 41.97 16.83
	Nitro- gen.		0.54						: : :	. 57	8.5.29	1.03
Ultimate	Car-		40.09							42.40	40.35 60.82	67.87 41.66 63.99
2	Hy- dro- gen.		9888	3						6.60	4.74 6.10 3.56	3.97 6.41 3.89
	Sul- phur.		0.55	226	1.4.29	1.03	1.20 1.46 1.67	31.	1.14	1.10	1.89	1.36
	Ash.		15.03	8.68 12.32	8.87 13.74	9.45	6.90	3.06	5.61	7.20	6.90	8.07
nate.	Fixed carbon.		30.51 43.05 54.64	48.84	28.72 44.78	33.31 48.80	56. 64 35. 24 51. 29	35.70 55.06 57.79	32.46 49.90 54.60	22.91 35.00	29.33 44.94 49.82	50 16 13.56 20.83
Proximate.	Volatile mat- ter.		25.33 35.74 45.36	27.96 39.67	45.24 41.48	25.49 37.35	26.57 28.67 38.67	26.08 40.22 42.21	26.99 41.48 45.40	35.34	60.67 29.63 44.66	49.84 43.48 66.78
	Mois- ture.		29.13	29. 52	35.51	31.75	31.29	35.16	34.94	34.55	33, 65	34.89
	Con- di- tion.		-016	2-101	n-0	n – 01	n − 0 n	200	-10100	-2	ಣ=೧	100 01
Sample.	Kind.		щ	В	В	В	B	щ	Ħ	В	В	щ
20	Lab- ora- tory No.		3701	5780	5962	5963	3782	3783	2423	3812	3815	3816
	Locality, bed, etc.	MONTANA—Continued. CUSTER COUNTY—Continued.	Miles—Continued. 5 miles southeast of; SE. 3 sec. 6, T. 7 N., R. 48 E., Weaver (old) mine, near Signal Butte, Weaver	6 miles south of; on military reservation, near f miles sevents et 25, T. 7 N., R. 47 E., Weaver	mine, 100 feet from shaft, Kircher bed. 19 miles east of; sec. 3, T. 7 N., R. 50 E., Dominy bed, outcrop (5-foot cut).	25 miles east of, on left bank of Powder River, sec. 2, T. 7 N., R. 51 E., Smith mine, Kircher bed	(33-footcut), 30 miles northwest of; near northwest corner of county, at head of Y oual Creek, sec. 20, T. 12 N.,	A. 3 E., ROUGEL PROPER, WE FOR THE PART STATES THE BATTON AND THE STATES OF THE TOTAL WEST COUNTY, At head of Crow Rock Creek, T. 12 N., R. 45 E., selected pieces from outcrop.	DAWSON COUNTY.  Glendive, 8 miles north of; NW, ½ sec. 27, T. 17 N., R. 55 E., Snyder mine (240 feet from entrance, 6½-foot cut).	Same (whole bed, 63-foot cut)	Same (drift entrance, 62-foot cut, weathered)	Same (head of drift, south of entrance, coal 6) feet thick).

019	019	019	610	611		611	611	612	612	613	613	614	614	614	615	615
:			316	316		341	341	341	341	341	341	390	341	341	341	341
12, 243 7, 337 10, 674	11,846	11,614	12,812			0 0 0 0 0 0 0 0 0 0 0 0	8,894	10,514	12,168	9,545	10,863	12,506	12,843	10,615	9,396	12, 390 11, 149 12, 715 13, 986
6,802 4,076 5,930	6,581	4,319	7,118			6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4, 941 5, 955	6,589	6,505	6,287	6,035 6,517 7,381	6,394	6,540	6,966	5,220	7,439 6,194 7,064 7,770
12.0	11.1	9.1	17.5	20.3		7.3	9.0	3.1	9.6	9.7	2.8	ري جنر	3.7	23	5.3	6.4
19.22 41.93 20.57								18.42		28.02		15.80	8.95	19.89	08.00 08.00	10.86
80.55	68						.62	38.85	1.0	. 20 10 10 10 10 10 10 10 10 10 10 10 10 10	7 · · ·	588	25.89	25.28	22.28	I. 08
73.04 43.93 63.91								58.91 66.45		56.70			6.8.2.5 8.8.8.8 8.8.8.8			
4. 43 5. 99 3. 67							3.72	4.2.4.	4. 20	5.13	T	4.31	4.55	* * * * * * * * * * * * * * * * * * *	4.4.6. 9.2.2.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.	4.91
2.33	1.29	1.76	.42	54	5	4.08	4.99	. 4. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	25.72	2.15	20.00	98.44	26.4.4	4.4.7.9.1 2.00.00.00	6.00 4.00 5.00 5.00 5.00 5.00 5.00 5.00 5	3.88 4.42 4.86
6.80		6.26	6.83	13.33	,	11.11	11.80	12.35	8.49	7.63	10.84	9.34 $10.15$	8.16	8.30 9.81	17.24	7. 97 9.09
23.77 19.52 28.40	31.51 28.31 42.29	48.30 20.86 31.16	34.38 34.19 46.73	51.55 30.77 44.81 55.60	3	45.65 53.35 61.31	43.83 52.83	61.59 46.56 52.52	48.36 59.39	58.88	55.46 59.89 67.83	56.05	53.63	48.08 56.79	43.46	61.93 51.31 58.51 64.36
				24. 57 24. 57 35. 78		28.80 33.66 38.69										38. 07 28. 41 32. 40 35. 64
31.26	33.06	33.06	26.84	31.33	1	14.44	17.03	11.35	18.56	15.65	7.39	7.98	8.34	15.35	12. 59	12.31
a	10 → 01	e → e = e		m − 01 m		-0100	-210	2-010	0 010		2 C1 C			0-010	2 01	
m	g	д	д	д		A	m —	В	В	М	m —	g	Д	B	e e	<u>m</u>
3817	3819	3820	2424	3842		5265	5267	5295	5294	5473	5474	5476	5471	5272	5291	5293
Same (100 feet from entrance)	Same (main entry, 200 feet from mine mouth).	Same (main entry, 25 feet from mine mouth).	12 miles southwest of; on Clear Creek, sec. 10, T. 14 N., R. 54 E., weathered sample from sur-	face outcrop of 4½-foot bed, 4-foot cut. Jordan, on Big Dry Creek, 91 miles northwest of Miles, 43-inch cut in 75-inch outcrop.	FERGUS COUNTY.	Buffalo, 74 miles southwest of: (4 miles east of Greene), NE. 4 NE. 4 sec. 20, T. 12 N., R. 14 E., Williams mine, 165 feet from entrance, 24-	8 miles southwest of; NW. 4 NW. 4 sec. 28, T. 12 N., R. 14 E., Saager Canyon mine, 85 feet	Forest Grove, 14 miles west of; SW. 4 SE. 4 sec. 1, T. 14 N., R. 20 E., Hobson mine, 140 feet in,	4 miles northwest of; SE. 4 NW. 4 sec. 35, T. 15 N. R. 20 E., Ben Hill mine, 140 feet in,	Glitedge, 2 miles southwest of; sec. 33, T. 16 N., R. 20 E., Sherman mine, 300 feet in, 39-inch cut.	24 miles southeast of; SE. 4 SE. 4 sec. 33, T. 16 N., R. 20 E., Shipley mine, 100 feet in, 19-inch	31 miles southeast of; NE. 4 NW. 4 sec. 3, T. 15 N., R. 20 E., Cliffe mine, 700 feet in, 33-inch	cut. 4 miles south of; NW. 4 NB. 4 sec. 9, T. 15 N., R. 20 E., Gold Reef mine, 35-inch cut.	Lewistown, 2 miles southeast of; NW. 4 NW. 4 Sec. 26, T. 15 N., R. 18 E., Spring Creek mine, 58-inch	44 miles northeast of: NE. 4 SW. 4 sec. 32, T. 16 N., R. 19 E., Brew & Parson mine, 300 feet in,	68-inch cut Same (90 feet in mine, 33-inch cut)

Table of chemical analyses—Continued.

Reference.	Page of this bulled tin.		919	616	617	617	617	618	618	619	619	620	620
Refer	Bul- letin No.		390	341	341	341	341	341	341	341	341	341	381
Calorific value.	British thermal units.		12,492	12,145	10,548	10,109	12,030	12,064	9,668	057'07	10,307	9,686	12,730
Calorifi	Calo- ries.		6,061	6,747	5,283	7,523 7,616 7,616	6,678	6,512	5,371	(,,000	5,726	6,249	7,750
	Air-dry-ing loss.		6.0	7.0	ن ت	% %	6.4	1.6	1.9	6.5	8.2	6.1	14.0
	Oxy-gen.			20.57	70.07		26. 52				25. 10	13. 33	28.26 14.83
e e	Nitro- gen.			.86	76		99.52	80			.81	68.	94
Ultimate.	Car- bon.			59.87 69.72	(6, 99		57. 31 70. 65	06			58.27	76.84	60. 48 73. 88
ב	Hy- dro- gen.			5.06	# no		3.81	4. 20			5.62	4.95	5.46
	Sul-		3.68	4.6.4.	4.63	189 65 189 45 189 45 180 180 45 180 45 180 45 180 4	5835 5835	5.00.0	0.00	52 55 55 55 55 55 55 55 55 55 55 55 55 5		7.63	8.89 1.08
	Ash.		8.91	10.07	19.32	21.85	7. 60	15.52	17.82	10.83	8.79	18. 01 20. 92	4.15
nate.	Fixed carbon.		48.81	25.55.55 4.65.65 4.65.	45.74	56.65 58 58 58 58 58 58 58 58 58 58 58 58 58	59.34	55.29 5.88 5.88 5.88	43.31	51.98	59.65 45.60 54.85	60.13 41.84 48.59	61.45 50.49 61.68
Proximate.	Vola- tile mat- ter.		29. 62 33. 91	27. 37 31. 87	31.28.11	28.61 30.73 13.73	25. 18 31. 04	24. 25 27. 35 28. 15	25.55 29.59 29.69	29. 64 35. 17	40.35 30.23 36.36	39.87 26.25 30.49	38.27.28 33.25 27.28
	Mois-		12.66	14.13	9.84	6.89	18.88	2.84	9.18	15.72	16.86	13.90	18.14
	Con- di- tion.		-101	2000	200	2-030	m-010	~~c10	n-01	10 H ca	m 01	m → n	es es e
Sample.	Kind.		m	В	В	B	В	g.	В	В	В	B	В
Ø	Lab- ora- tory No.		5296	5292	5343	5475	5289	5472	5274	5266	5264	5273	6859
	Locality, bed, etc.	MONTANA—Continued. FERGUS COUNTY—Continued.	Lewistown—Continued.  8 milles eats of; center of sec. 24, T. 15 N., R. 19 E., Hamilton mine, 450 feet in, 44-foot cut.	84 miles southwest of NW. 4 NW. 4 sec. 25, T. 15 N., R. 19 E., Black Diamond mine, 400 feet	in, 44-foot cut. 9 miles east of; NE. ‡ SW. ‡ sec. 18, T. 15 N., R. 20 E., Flaherty mine, 170 feet in, 46-inch cut.	9 miles northeast of; NE. 4 SE. 4 sec. 7, T. 16 N., R. 19 E., Nevin mine, 600 feet in, 30-inch cut.	9 miles southeast of; SW. 4 NE. 4 sec. 6, T. 14 N., R. 20 E., Peiper mine, 315 feet in, 34-inch cut.	Maiden, 5 miles northwest of: SW. 4 NW. 4 sec. 32, T. 17 N., R. 19 E., on Warm Spring Creek, Maco	mine, 500 feet in, 45-inch cut.  Moore, 10 miles southeast of; on Rock Creek, SW, 4 SE, 4 sec. 3, T. 13 N., R. 17 E., Knox mine, 250 feet	in, 29-inch cut. 9 miles southeast of; on Rock Creek, SE. ‡ NE. ‡ sec. 16, T. 13 N., R. 17 E., Sharp mine, 300 feet		10 miles southeast of, on Rock Creek, NW. 3 SW. 4 sec. 14. T. 13. N R. 17 E., Rand mine.	

621	621	622	623		623	623	623	600		623	6230	624	F.79		624	
381	341	316	316		:				:	:	:	368	368	368		
11,050	9,869	9, 220	12, 746 10, 215 11, 257	13, 434	14,092	15,721	9,549			12, 949	9,518 10,964 13,531	12,218		12,355		
			7,081 5,675 6,254		7,829	8,734	5,305			6,083 6,944 7,691		6,364		5,234		
8.1	3.0	5.5	4.6		1.5	2.8			23.1	.23	::	3.0	2.0	-	0	
		20.37	14.32	11.72	4,44	13.93	9.11			2512	24.07 14.22 17.55	T 6 1				9.77
		69	26.78	1.05	1.28	1.43	1.27			1.06	888			: : :		1.1.202
			58.13			82.72 90.33 50.33				52.15	52.63 60.62 74.81	25.2		56	78.33	69. 23 73. 47 82. 75
-		4.51	25.4.4.2	4.96	4	6,44 8,03 8,03	(c) (c)			10 45	2040			4	* es to	5.03
55	5.55	4.56	. 0. 0. 5. 2. 0. 0. 5. 2. 0. 0. 5. 3. 0. 0. 5.	5. 5. 5. 5.	98.	88.00		22.50	14.6		3285	44.65	1425			. 50 . 53 . 60 . mtv.
0.0	20.96		15.26		8.31	∞ : §	33.5	16.88	34.54	8.51		15.	30.	16.	32.	10.57 11.22 11.22
51.8	65.0	46, 49	45.28	50.59 60.81	73	7.28	39.75	39.	33 85	2485	200	45. 65 48. 69 58. 48	200	440	200	
	2000	388	28. 74	550	16.49	16.76	26.95 28.48 42.11	31.05	28.97 31.97	48.84 42.05	33. 44 33. 52		21224	994	20.52	33. 14 35. 17 39. 62
14.3	9.95	11.26	9.27		9 05	i	5.38	12.50	10.42	12.40	13.18			. ; ;		5.77
-	10 m	31 co	000	0100	-	107 00	-00	- 67	100-10	100-01		n − 01 m	<b>⊣</b> 01 m	-0100		
В	В	2	n m		5	a	A	2	B	a	A	a	4	4	ت <u>و</u>	<u>д</u>
8801	5290	2756	3753			1299	3667	3813	3814	3818	3821	3691	1660	1670	2110	6597
1 1 NW. 10 1 mile west of: NW. 1	Roundup (Yellowstone Coultry). The Sec. 23, T. 8 N., R. 25 F., Commercial mine, a goo feet in, Roundup bed, 65-hole eut.	Utica, 2 miles west of, Mr. 7 a.k., 100 foot in, 38-inch R. 12 E., Showan mino, 100 foot in, 38-inch cut.	1; on . 12 E n mot	5 miles southwest of; SW, 4 Eb., 4 Sec. 30, 10 Co. N., R. 12 E., west side of Spring Draw, Seman mine, 400 feet from mouth, 55-men, cut.	GALLATIN COUNTY.	Chesnut, near; SW. 4 sec. 13, T. 2 S., R. 6 E., Beedeand Bailey mine, run-of-mine sample.	Near; sec. 21, T. 2 S., R. 7 E., Mountainside mine, sampled by J. P. Rowe.	8 miles south of; Hoffman mine (third cutry, 800	down,	Same (1,200 feet in mine, head of west entry)	Same (location in mine not stated)	Storrs (3 miles southeast of Chesnut), Anaconda mine, J. P. Rowe sample.	Storrs No. 3 mine, No. 2 bed (4,600 feet north of opening, 71-inch bed, 5-foot cut).	Same (4,000 feet north of opening, 81-foot bed, 73-inch cut).	Same (run of mine, 40 tons)	# mile east of, sec. 26, T. 2 S., R. 7 E., Washoe No. 1 (Hodson) mine, pillar between rooms I and 2. Bed about 4+ feet.

99500°—Bull, 22—13——10

a Now included in Musselshell County.

Table of chemical analyses-Continued.

nce.	Page of this bulletin.		625	625		929	626	979	626	627	729	. 129
Reference.	Bul- letin No.		:	341		:	:	:	:			
Calorific value.	British thermal units.		8,696 10,787 13,653	8,539 9,151 13,982 6,374 9,022		12,764	15,590 10,687 11,273	14,173 11,320 11,536	15,190 9,875 11,970	15, 289 13, 286 13, 700	15, 466 9, 247 11, 052	13,178 11,414 11,921
Calorific	Calo- ries.		4,831 5,993 7,585	5,744 7,768 7,768 5,541 5,012		7,091	8, 661 5, 937 6, 263	7,874 6,289 6,409	6,5,439 6,50 6,050	7,381 7,611	8,592 5,137 6,140	7,321 63.41 6,623
	Air- dry- ing loss.		9.30	4.1		2.7	2.7	6.	13.6	2.4	9.4	3.2
	Oxy- gen.		28. 66 14. 17 17. 93			8.95 5.66	6.64	6.35	5.71	5.8.29	6. 44 26. 64 14. 49	17. 28 9. 33 5. 80
	Nitro- gen.		0.63			1.12	1.37	988	1.05	1.14	28.8 88.8 88.8	1.17
Ultimate.	Car-		45.98 57.04 72.20			70.57	86.19	64.40	86. 42 55. 05 66. 73	73. 60 75. 89	85. 67 53. 48 63. 92	76. 21 64. 07 66. 91
P	Hy- dro- gen.		6.44			4.61	5.09	4.35	5.56 4.15	5.30	5.57	4.53
	Sul-		1.37	4.055.04.04.04.04.04.04.04.04.04.04.04.04.04.		82.00	1233	24.45	6.52.55	888	99.	1.33
	Ash.		16.92 20.99	32. 24 34. 55 11. 61 16. 43		14.17	19.40	23. 60 24. 05	17.91	11.08	13.50	19. 49
nate.	Fixed car-		25. 97 32. 22 40. 78	38.75 38.31 58.53 31.57 44.69		59.34	72.48 40.07 42.26	55.74	73. 44 45. 22 54. 81	58.35	65. 60 40. 05 47. 87	57. 08 48. 92 51. 09
Proximate.	Vola- tile mat- ter.		37. 72 46. 79 59. 22	25. 32 27. 14 41. 47 27. 47 38. 88		22. 53 23. 46	27.52 35.33 37.27	20.17 20.17	23.48	29. 99 29. 55 30. 47	34. 40 30. 12 36. 00	42. 92 27. 34 28. 55
	Mois- ture.		19.39	6, 69		3.96	5.20	1.87	17.50	3.02	16.33	4.25
	Con- di- tion.		222	-00-00		707	e - e - e - e - e - e - e - e - e - e -	2010	n − 01	10 H ca	∞-0	12 H CO
Sample.	Kind.		д	д д		B	В	А	A	Д	A	В
02	Lab- ora- tory No.		*10534	5733		3666	6639	6299	0099	1099	2099	0199
	Locality, bed, etc.	MONTANA—Continued. GRANTE COUNTY.	Drummond, near, prospect in the NW. ‡ NW. ‡ sec. \$5, T. 11 N., R. 13 W., 4½-foot cut.  MEAGHER COUNTY.	Dorsey, 10 miles southeast of, at head of Sixteen-Mile Creek, NW, 4 NW, 4 sec. 6, T. 5 N, R. 9 E., Reese mine, 200 feet in, 43-inch cut.  Harlowton, 12 miles southwest of, near Big Elk post office, on Big Elk Creek, SW, 4 SW, 4 sec. 31, T. 7, N, R, 14 E., 18-inch cut, a weathered.	MUSSELSHELL COUNTY,b PARK COUNTY,	Aldridge, Aldridge mine, NW. 4 sec. 1, T. 9 S., R. 7 E	Same (10,000 feet in mine, No. 3 bed, tipple sample).	Same (6,000 feet from mouth, No. 1 bed, about 4½ feet).	Same (washed coal, two-thirds from Aldridgo mino and one-third from Foster mine).	12 miles southwest of; sec. 2, T. 9S., R. 7 E., Foster mine, No. 1 bed.	Chimney Rock, NW. 4 sec. 27, T. 3 S., R. 8 E., Maxey mine, face of entry, Maxey 9-foot bed, cut 8	Electric (Horr), NW. 4 sec. 7, T. 9 S., R. 8 E., Newton mine, 1,000 feet in.

c Now included in Musselshell County.

627	628	629 630	630	630 631
341	341	341	381	341
14, 971 10, 757 12, 188 13, 838 13, 838 10, 445 11, 510 12, 337 14, 940	8, 231 11, 570 12, 129	10, 679 111, 453 113, 900 7, 213 8, 048 13, 274 6, 383 8, 540 10, 605	5, 999 10, 555 11, 759	8,597 112,209 8,532 10,035 10,031 11,567 10,211 10,121 13,262 13,262 13,262
8,7,0,5,5,5,5,8,8,7,6,5,8,9,3,1,0,5,6,5,1,0,5,6,5,1,0,5,6,5,1,0,5,6,5,1,0,5,6,5,1,0,5,6,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5	4, 573 6, 428 6, 739	6, 933 6, 933 6, 933 7, 4, 471 7, 2, 4, 471 8, 744 8, 744 8, 91	3, 333 5, 864 6, 533	4,0,0,4,0,0,4,0,0,0,0,0,0,0,0,0,0,0,0,0
3.7	20.0	2. 4	38.7	64 69 69 69 69 69 69 69 69 69 69 69 69 69
21. 65 112. 71 14. 42 13. 64 11. 97	40.59 21.02 22.04	15. 45 10. 13 12. 30	8 1 8 8 1 8 1 9 1 9	38.05 21.48 22.64 27.83 14.93
1.27 .887 .112 .866 .92 1.28	. 84 1.18 1.24	1.10		
84. 02 61. 17 69. 31 78. 70 53. 79 57. 38	48. 66 68. 40 71. 70	61. 47 65. 92 80. 00		41.41 54.92 68.11 59.00 77.47
5. 69 6. 63 6. 03 7. 26 6. 03	6,34 4,53 4,55	5.04	; ; ; ; ; ; ; ; ;	4.2.2.4.4. 8.2.4.4.4. 6.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.
1.75 2.39 2.68 2.68 1.01 1.01 2.63	. 66 . 95 1. 16 . 32 . 45 . 47	.53 .69 .68 .58 .107 .141 .55	.29	64. 0.00 1144. 144. 164. 164. 164. 164.
10.52 11.92 11.92 26.26 28.01 14.97 15.35	12.38 17.84 3.28 4.61	16.41 17.60 35.29 39.37 14.55	5.82	12.63 15.21 10.89 13.11 14.61 19.37 7.68
64.15 46.35 53.20 53.20 53.65 53.65 63.65 63.65 63.65 63.65	20.82 29.99 36.51 38.36 53.92 56.53	44, 47, 49, 47, 69, 332, 06, 95, 60, 95	28.99 51.00 56.82	39. 64 47. 73 556. 29 39. 15 47. 73 27. 94 45. 95 45. 95 54. 57
35.85 441.22 46.80 32.60 32.64 45.34 45.34 31.60 37.33	36. 21 52. 17 63. 49 29. 50 41. 47	32.37 32.37 34.71 22.28 24.86 24.00 39.05	22. 03 38. 76 43. 18	30.78 37.06 37.06 33.05 33.05 45.78 45.58 45.58 40.65 40.65 40.88
11.75	30.59	6.75	43.16	16.95 16.91 24.59 17.45
0000000000	con		- C1 C2	
д д д	д д	д д д	B	<b>д д д</b>
3725 6596 5723	5403	6320 5735 5732	7059	5798 5797 5799
7 miles from; Mountain Housemine (Korentz mine, new name), 4,300 feet from entrance.  Livingston, NE., 1 NW., 4 sec. 25, T. 2 B., R., 8 E., Livingston mine, 100 feet in, 31-inch cut.  Myersburg, 8 miles north of, sec. 36, T. 5 N., R. 8 E., coal-bin sample.	Darby, 3 miles north of, NW. 4 NE. 4 sec. 34, T. 4 N., Nicholson mine.  R. 21 W., Nicholson mine.  ROSEDUD COUNTY.  Birney, 12 miles southeast of, sec. 2, T. 8 S., R. 43 E., 60 feet in, Kendrick mine, Kendrick bed, 114-foot cut.	SWEET GRASS COUNTY.  Nye, 6 miles north of; NW, ‡ NE. ‡ sec. 29, T. 4 S., R. 16 E., Lodier mine, face of entry, 5‡-foot bed, 55-inch eut.  Winnecook (Meagher County), 6‡ miles southeast of, no 30 of Creek, SE. ‡ sec. 1, T. 6 N., R. 16 E., prospect thift, 20 lect from entry, 25*-fach cut.  8 miles southeast of, on south bank of Holcomb Creek, SE. ‡ sec. 11, T. 6 N., R. 16 E., weathered, surface outcrop, 30-inch cut.	VALLEY COUNTY.  Culbertson, 3 miles north of; sec. 8, T. 28 N., R., 56 E., Bruegger mine, west side of main entry. En- tire bed, about 8§ feet. Bed G.	Buckey, 3 miles northeast of; o NE. ‡ NW. ‡ sec. 36, T. 6 N. R. 26 E. Dorrity bed, 32-inch cut, badly weathered. Dorrity bed, 32-inch cut, 34 miles north of; o NE. ‡ NE. ‡ sec. 27, T. 6 N., R. 26 E. Dorrity bed, 2-foot cut, badly weathered. ‡‡ miles northeast of; NE. ‡ SW. ‡ sec. 30, T. 6 N., R. 27 E., Mammoth 8‡-foot bed (upper 18-inch bench, badly weathered). Same (lower 7-foot bench, slightly weathered).

a Eagle coal bed.

b Mines now included in Musselshell County are indicated by footnote.

Table of chemical analyses—Continued.

ence.	Page of this bulletin.		631	632	632	632	633	633	633	634	634	635
Reference.	Bul- letin No.		341	381	381	381		381	381	431	381	381
Calorific value.	British thermal units.		11,034	12, 260 10, 280 12, 451	12, 973 12, 160	9,016	12, 271 9, 736 12, 276 13, 289	8,863 11,477 12,213	10, 226 12, 271 13, 469	7,115	7,240	7,170
Calorifi	Calo- ries.		6, 130	7, 700 5, 711 6, 917	7, 207 5, 495 6, 755	6, 386 6, 386	6,817 6,820 7,383	4, 924 6, 376 6, 785	5,681 6,817 7,483	3,950	5,640 5,640	5, 635
	Air- dry- ing loss.		2.7	12.9	14.8	16.3	14.8	13.5	7.2	19.3	18.7	19.3
	Oxy-		21, 18	12. 43				35.14 19.30 20.53	25.78 13.17 14.46			
	Nitro-gen.		1.01	T : :				1.28	.97 1.16 1.27			
Ultimate.	Car- bon.		64.26	20.72				53.49 69.26 73.70	59. 22 71. 06 78. 00			
	Hy- dro- gen.		4.62	90 °C				5.47 3.81 4.05	5.61 4.51 4.95			
	Sul-		0.54	8.84:	4.2.96	25.83	1.08	8:4:4:	1.20	88.	3.35.89	5.8.5
	Ash.		7.7	3.32	5.12	4.96	6.05	4.65	7.42 8.90	7.2	6.4	9.1
nate.	Fixed carbon.		50.90	58.03 58.03 58.03	60.68 46.61 57.30	43.02 54.85	28.55 44.66 56.30 60.95	45.58 59.02 62.80	48.07 57.68 63.31	36.2	39.4	38.6 55.0
Proximate.	Volatile mat- ter.		28.71	31.16 37.74 37.74	29. 32 29. 62 36. 41	38.83	41.45 28.61 36.07 39.05	27.00 34.96 37.20	27.85 33.42 36.69	39.0	26.55.5	35.5
	Mois-		12.69	17. 43	18,65	21.56	20.68	22.77	16.66	28.6	28.7	29.4
	Con- di- tion.		-00	m-01	m-0:	2-01	m 01 m	-0100		-010	2-01	2-101
Sample.	Kind.		g	д	В	B	B	p	В	Д	щ	B
ΔŽ	Lab- ora- tory No.		2800	6831	8289	0830	* 9129	7197	7195	8467	8466	8465
	Locality, bed, etc.	MONTANA—Continued. YELLOWSFONE COUNTY—continued.	Buckey—Continued. 15 miles northwest of sec. 23, T. 8 N., R. 25 E., 1 mile east of Roundup (Fergus County),	Huntley, Sa miles northeast of; surface prospect in Mammoth 27-foot 9-inch bed (6-foot cut).	Same (lower bench, 5-foot cut)	NW. 4 SE. 4 sec. 10, T. 6 N., R. 28 E., Cow Gulch prospect, Dougherty 594-inch bed, 584-inch	Musselshell, 4 miles southeast of; sec. 2, T. 8 N., R. 29 B., surface outerop on Hawk Creek, Nevorbing & Todd mine, a Custer bed, 303-inch cut,	Same (6 miles east of; SE, 4 SE, 4 sec, 17, T, 9 N., R. 30 E., on Carpenter Creek, Robbins prospect 75 feet from mouth, Carpenter by the feet from mouth, Carpenter by the feet from mouth, Carpenter feet from feet feet from feet feet from feet feet feet feet feet feet feet fee	Same (8 miles south 0; SE, ‡ NE. ‡ sec. 29, T. 8 N., R. 29 E., on Fishel Creek, Grant prospect, 200 feet from mouth, Buckey bed,	7 miles east of; NW. 4 SW. 4 sec. 28, T. 9 N., R. 30 E., Custer prospect, 15 feet in, Custer bed,	9 miles east of; sec. 26, T. 9 N., R. 30 E., surface out- crop, Grant prospect, a Carpenter Creek bed,	94 miles east of; NE. 4 SE. 4 sec. 26, T. 9 N., R. 30 E., surface outcrop, a near Grant prospect, mine

636	637 637 637	689	639	
381 431	38 438 38 38 38 38 38 38 38 38 38 38 38 38 3	######################################	<b>82388238</b>	
9, 322 11, 425 11, 425 12, 859 11, 050 12, 760 13, 740	11, 690 12, 155 16, 175 10, 175 10, 175 10, 175 11, 690 11, 690	13, 030 115, 260 115, 260 115, 260 112, 539 112, 890 115, 160 115, 251	13, 063 13, 356 15, 066	12, 445 112, 881 115, 881 112, 294 114, 875 14, 9545
6,205   5,179   6,347   7,144   6,140   7,085   7,635	7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7	8,478 8,478 6,966 8,422 8,473	7, 257 7, 420 8, 370	6,914 7,156 7,156 6,830 7,025 8,264 8,264 8,308 n cut.
11.1	7. 7. 10. 3 .3 .3 .3 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	2.1.2.1.4.1.1.2	1.0	1.55 10.55 1.7 6.918 1.55 2.09 8.322 1.81 9.09 8.322 1.51 9.74 1.4 8.835 1.83 8.79 8.29 1.84 8.85 8.300 probably all included in cut
28.80 15.26 17.18		6. 48 6. 48 7. 64 6. 48		10. 55 7. 82 9. 09 9. 14 9. 74 7. 47 8. 85
.80 .98 1.10		1.17		1. 55 1. 55 1. 81 1. 82 1. 82 1. 83 1. 83 1. 84 probabl
53.68 65.78 74.04		69.96 71.92 884.58 85.31		68. 67 71. 07 71. 07 83. 28 68. 51 70. 47 70. 47 83. 52 rtings, 1
6.01 4.86 5.47		8. 4. 4. 7. 7. 7. 8. 8. 4. 4. 7. 7. 7. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.		5. 13 5. 72 5. 76 5. 76 6. 75 7. 75 1any pa
.55 1.60 1.96 2.21 2.21 .40 .45	400000000000000000000000000000000000000	818888818	72.83.83.83	.63 .73 .73 .61 .63 .74 .74
9.11 11.16 6.2 7.2	0.00 1.00 0.00 0.00 0.00 0.00 0.00 0.00	12. 37 12. 65 13. 10 13. 41 14. 57 14. 98		8 48 45 13.54 .01 2 8.65 71 .05 8.67 8.65 71 .05 8.05 8.05 8.05 8.05 8.05 8.05 8.05
60.5 241.09 552.04 660.3 65.0	63.85.00 63.85.00 63.85.00 63.85.00 63.85.00 63.85.00 63.85.00 63.85.00 63.85.00	52.19 61.13 61.13 52.80 60.98 61.49	50.75 51.88 58.54 51.26 52.67 53.58	48. 45 50. 15 58. 32 48. 34 49. 72 58. 49
39.5 34.8 34.8 32.5 35.0	88888444555888 020020228888	33.19 33.95 33.95 33.01 33.79 33.79 33.74 35.74	35.95 36.76 41.46 37.24 41.42	9 : BIGH : 00C
18.4	29.7 29.7 15.1 20.7	2. 25 2. 25 2. 25	2.19	3.38
о намнаю			-00-00	
д д	<b>д д д д</b>	4 4 D	4 4	0 0
8464	*9130 8621 8578	3226 3227 3294	3228	3315 3331 unty.
of Mary McCleary and Anne Oker, 50 feet in, McCleary bed, 45-inch cut.  10 miles east of, SE. 4 NW. 4 sec. 36, T. 9 N., R. 30 E., surface prospect, a Buckey bed, 14-inch cut.  Roundup, NE. 4 NW. 4 sec. 24, T. 8 N., R. 25 E., Bull Mountain fleid, Republic mine, No. 1, 8 800 feet east of foot of shaft, Roundup bed, 634-	3 miles southwest of, sec. 36, T. S N., R. 25 E., Republicanne, No. 2, e300 feet northwest of foot of main shalf, Roundup bed, 65-finel cut. Waco, 6 miles northwest of; N.E. 4 NW, 4 sec. 16, T. 5 N., R. 31 E., surface outcrop on Buffalo Creek, Perry bed, 2-foot cut. 7 N., R. 31 E., surface prospect on Alkali Creek, Big Dirry bed, a weathered.  2 miles north of: N.E., 1 NW, 4 sec. 32, T. S N., R. 31 E., surface prospect on Alkali Creek, Big Dirry bed, a weathered.  S. surface prospect on Alkali Creek, McCleary bed, 50-molt cut.	Blossburg, Dutchman mine, "Raton" bed (5,300 feet north of slope, \$1-inch cut).  Same(4,200feet southwest of slope, 781-inch cut).  Same (run of mine)	Brilliant, "Tinpan" bed (475 feet southwest of drift mouth, 44-foot cut).  Same (800 feet south of drift mouth, 4-foot cut)	Same (slack, through 1½-inch screen)

a Now included in Musselshell County.

Table of chemical analyses-Continued.

	ťΩ	Sample.			Proximate	mate.			٦	Ultimate.	ಣಿ			Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy- gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
NEW MEXICO-Continued.						ţ.	1					1				1	
COLFAX COUNTY—continued.																	
Dawson, No. 2 mine (6,000 feet north of opening,	256D	Y	10	2.17	37.93	45.08	14.82	0.69	:				0.7	6,992	12,586	368	640
"Raton" bed.	E	7	400+		45.69	54.31	10.14	183	: :					8,315	14,967		
Same (run of mine, 32 tons)	271D	0	-67	1.96	36.68	46.20	15.88	.75	5.01	68.26 69.62	1.03	7.50		6,913 7,051	12,443		
Same (93-foot cut)	9099	V	m → 0	3.09	32.25	56.23 49.40	15.26	21.5		83.08	1.23	8.95	1.9	6,799	15, 145		640
The of M of M of The orange	0000	F	200		39.50	60.50	15.75	28.5	: :				: ia	7,016 8,327	14,989		
Sugarite mine (1,800 feet from mouth, 553-inch	0220	<b>a</b>	-010	2. 12	36.84	51.31	11.85	.65	4.80	71.48	1.36	1.85 9.86	a	7,359	13,246	:	149
cut.). Sugartic bed 5 miles northeast of sec. 10, T. 31 N., R. 24 E., Hartzel mine (50 feet from mouth of abandoned)	6285	В	n-c	5.37	34.01	50.21 50.67	12.67	4.88.5	- :	81.09	1.54	11.18	2.0	6,441	11,594		641
entry, 43-inch cut). Sugarite bed.	6987	p	9 co ⊢	6 73	41.50	58.50	7 83	288	: :	60 04	1 20	16.90	0 6	7,858	14,144		619
et from mouth of abandoned	070	3	4010		35.32	56.28	8.40	12.2	20.00	73.92	1.29	11.04	h :	7, 432	13,377		250
t of; sec. 10, T. 51 N., R. 25 E.,	6284	В	2-0	9.78	33.11	47.54	9.57	8 55 56	- 1	07.00	I. 41	12.03	5.1	6,559	11,806		642
Scoop mine (not in operation, 49-inch cut).	GROK	p	(m-	0 45	41.06	58.94	17 40	.65	: :	06 00		7 70	G	8, 133	14,639		0 10
feet from opening, includes lower bench exclu-	0000	9	103	0F.70	28.23	53.93	17.84	. 79	4.66	70. 10	. 92	5.69	1.0	6,948	12, 200		240
Van Houten, Willow mine, "Raton" bed (2,000 feet	3221	¥	en 0	2,50	34.36	65. 64 52. 90	9.13	.72	- :	85.32	1.12	6.93	1.0	8, 456 7, 293	13, 221	332	643
dille mouth, est-inch cut).			7 00		50, 38 40, 14	59.86	9.30	.82						8,253	13, 404	5 85	
Same (3,000 feet from drift mouth, 724-inch cut).	3222	4	-27	3.48	33.02	50.58	12, 92	.64					2.0			332	643
Same (run of mine)	3295	C	00 ==1	3.45	39, 50	60.50	16.67	7.73	4	66.19	1.23	10.23	2.0	6,607	11,893	332	
			20 00		40, 14	59, 54	17.26	97.	5, 73	68, 55	1.27	7. 43		6,843	12,317		

		614	644	644	644	645	645	646	646	919	919	249	648	648	648	
332	332	-	:	9	9				316	316	285	316	316	316	48 261	-
11,912 12,456 14,944 15,057	12, 166 12, 510 14, 886	13, 145	13, 327	13, 178	12,717 13,088	12, 064	12, 263	11111 111111 1111111111111111111111111	11, 246	14, (41		11, 468 13, 412 14, 042		11,623	14, 134	
6,618 6,920 8,302 8,365	6,759 6,950 0,270	7, 303	7,501	7,321	5.7.7.3 2.2.65 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	6,702	8,077 6,813 7,491	6,623 7,917 7,970	6,248	6, 196		6,371		6,457	7,802	-
3.0	4.1	1.4	1.5	1.3	1.5	°;	3.5	3, 4	3.9	(3)	9.3	5.1				,
11.32 7.77 9.33 9.42	10.75 9.40 8.40 8.40 8.40	9.03.00 \$25.85	20.02	0.00	6.01	15.00	522	15. 65 15. 68 14. 41	15.33	60.11		25.08 14.26 14.91				
1.13	21.1.2	1111	1885	7.00	1.28	888	888	1.28 1.28 1.45	1.07	1. 30		1.2 1.2 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	: :			
65.96 68.97 82.74 83.62								80.55 64.93 78.16	65.65	79. 40		63.41 74.16 77.65				-
5.41					50.25	3.5.8.E	25.4	7.4.4.7 2.22 2.22	5.21			6.02 5.16 5.40				
.83	788.	888	55.83	18.28	.11.	1883	\$ 42 55	2828	1.48	125.	185	54.83	1.27	1.55	8388	I.08
	15.52	9.47	8.82	10.01	12.37	12.00	7.18	11.29	15.98	6.76	6.30	3.85	9.87	8.08	12.68	.d.
	48.54 49.91 59.30							58.35 49.24 52.18 59.27				52, 58 52, 58 54, 58	40.23	40.82	37.87 41.79	48.60 t
	33. 19 34. 13 40. 61							5%% 2%% 2%%				43.37.62			4.05	
4.36	2.75	2.42	2.51	2.43	2.84	5.02	9.04	5.63	7.76	15.03	13.95	14.49	9.13	9.68	9.40	
	-0100	# 01 C	0-1010	o ⊷ c3 c		o ← 03 c	n → 01	ಬ್ಲಂಬಲ	-00	10 H C4 C	0 63 0	0-0100	-010	0-01	m → 63 c	m -
0	Ö	A	8	4	4	A	m	a	<b>a</b>	m	m	<b>m</b>	<	4	4	
3307	3308	6417	6418	6931	6930	6243	6255	6244	3952	2361	2134	4112	1027	1028	1029	
S S	Same (slack, through 4-Inch screen, 40 tons)	Sec. 34, T. 30 N., R. 22 E., Willow No, 5 mino, left learly 3, 4 Raton", bed, 61-inch cut (upper	Same (lower bench)	Same (500 feet west, cross cut between entries 3 and 4, near room 6, lower seam, 1074-inch cut).	Willow No. 6 mine (800 feet south, room 5, left entry 3, 992-inch e.t.). "Raton" bed,	Yankee, NW. 4 SW. 4 sec. 1. T. 31 N., R. 24 E., Yankee No. 3 mine, working face 1,000 feet from mouth	3 miles southeast of; see: 20, T. 31 N., R. 25 E., Llewellyn mine 150 cet from mouth of main	2miles north of: sec. 20. T. 32 N., R., 25 E., Roynolds mine (77-inch bod; 504-inch cut).  M KINLEY COUNTY.	Blackrock, 10 miles northeast of; Zuni Indian School mine, 50 feet from mouth, upper bed, 40-inch	Chaves, 16 miles northeast of; T. 16 N., R. 11 W., Tlejon prospect, 57-inch cut.	Clarkville, sec. 14, T. 15 N., R. 19 W., Clark mine, Clark (84-foot) bed (sample represents 7)	14 miles northwest of (5 miles southeast of St. Michaels, Ariz.); mine of St. Michaels Indian School, 55-inch bod (sample from fresh stock	Gallup, 13 miles east of; NE. 2 NW. 4 sec. 14, T. 15 N., 18, 18, N. V., Otero mine (Crown Point 53-60ct	Sano, 500 feet from opening, occurs, the bod, 4-foot cut).	Same, 500 feet from opening (Thatcher bed, 4-foot cut).	

Table of chemical analyses-Continued.

Reference.	Page of this bulle-tin.	648 648 648	649
	Bul- letin No.	316 32613 316 316 316 316 316 316 316 316 316	341
Calorific value.	British thermal units.	9,907 11,010 14,010 14,225 11,252 11,252 11,282 11,829 11,939	13,725 13,964 15,021 12,933 13,340 14,814 15,268
Calorifi	Calo- ries.	5.5.504 77,903 6.6.603 7.7.72 7.7.74 7.7.74 7.7.74 7.7.74 7.7.74 7.7.74 7.7.74 7.7.74	7,625 7,758 8,347 7,411 8,230 8,230
	Air-dry-ing loss.	(c) (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d	4.
	Oxy- gen.	18.84 10.37 13.10 13.35 12.22 12.82 14.00	10.28 8.91 9.58 9.05 7.27 7.27
	Nitro- gen.	1. 95 1. 35 1. 37 1. 03 1. 1. 03 1. 28	1.56 1.71 1.48 1.70 1.70
Ultimate.	Car- bon.	55.07 61.73 79.48 79.48 72.18 779.04	75.38 76.69 82.50 70.72 72.94 81.01 84.42
ו	Hy- dro- gen.	5.5 4.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	5.55.33 5.59 5.99 5.99
	Sul-	81111111111111111111111111111111111111	
	Ash.	66.08 6.08	6. 92 7. 04 9. 66 9. 96
mate.	Fixed car-	244184143	55. 11 56. 07 60. 32 48. 28 49. 79 55. 30
Proximate	Vola- tile mat- ter.	64388824 2348824 2348824 25888 25888 2588 2588 2588 2588 25	36. 26 36. 89 39. 68 39. 02 44. 70
	Mois- ture.	10.80 10.79 11.38 11.00 11.00	3.04
	Con- di- tion.	H 0 0 H 0 0 4 H 0 0 H 0 0 H 0 0 H 0 0 H 0 0 H 0 0 4	H (2) (2) H (2) (3) H
Sample.	Kind.	4 0 4 4 4 ·· 0	<b>д д</b>
202	Lab- ora- tory No.	1038 1023 1024 1025 1026	2121
	Locality, bed, etc.	NEW MEXICO—Continued.  M'KINLEY COUNTY—continued. Same, 2,000 feet from opening (Otero 61-inch bed, 4½-foot cut).  Same (slack from Otero and Thatcher beds, 20 tons).  3 miles north of, SE, ½ sec. 34, T. 16 N., R. 18 W., Weaver mine (No. 3 bed, 2,000 feet from opening, 49-inch cut).  Same (No. 3½ bed, 600 feet from opening, 6½-foot cut).  Same (No. 3½ bed).  Same (No. 3½ bed).	Lumberton, 14 miles southwest of; see. 8, T. 31 N., R. 1 W., Burns-Biggs mine, 200 feet from opening, No. 1 bed, 3-foot cut. Monero, Kutz mine, sec. 17, T. 31 N., R. 1 E., Upper bed, 41-inch cut.

	ANA	LYSES OF	COALS II	N THE	UNIT	ED S	PATE	5.	141
650	029	651	652	652	653	653	653	653	654
341	316 48 316 48	285 316 285 316	316	381			10	10 L	381
		11, 297	9, 970 11, 840 13, 322		13, 268 14, 071 15, 025	13,478 14,006 14,755		12,742 13,261 14,870	12, 215 12, 587 14, 838 13, 264 13, 678 14, 805
		6, 276 6, 965 7, 853	5,539 6,578 7,401		7,371	7,488 7,781 8,197		7,367	6, 750 6, 993 8, 243 7, 369 8, 225
1.5	* * * * * * * * * * * * * * * * * * *	4. 5	7.6	6.	2.9	7	1.3	2.1	0.0
			25.79 13.96 15.69		1.84	9.93			8.83 9.81 11.86 10.22
			1.39 1.65 1.86		1.26	1.15			1.54
			55.74 66.19 74.48		82.87	75.36 78.30 82.49			69. 80 69. 80 73. 27 75. 56
			5.93		86	5.70			5.69 6.44 7.57 7.69 6.69
1.01	90.773	21282288	22.1.298	2.75 3.74	.73	.62	88.88	8658	.95 .95 1.03
6.19	6.64 7.35 5.67 6.15		8, 36 10, 13 9, 37 11, 13	24. 62 25. 05	6.35	5.08	7.36	10.40	14.72 15.17 7.38 7.61
51.04 53.16 56.67	41.36 49.43 41.80 45.34 48.31	41.48 46.03 51.90 47.89 52.22 57.39		51.39 52.29 69.77	86.13 91.34 97.53	56. 93 59. 16 62. 33	49.85	55.83 46.82 48.74 54.65	45.12 46.50 54.82 51.56 53.17 57.55
39. 03 40. 65 43. 33	42.32 46.86 50.57 44.72 48.51 51.69	38. 44 42. 66 448. 10 35. 56 38. 78		22. 27 22. 66 30. 23	2.18	34. 42 35. 76 37. 67	39.44	44. 17 38. 87 40. 44 45. 35	37, 20 38, 33 45, 18 42, 22 42, 45
3.99	9.68	8.30	17.46	1.72	5.70	3.76	3.35	3.91	3.03
- 03 to		-00-00	-00m-00m		-010	) 01 co	-01	n <b>−101</b> m	
A	д д	m m n	n m	Ħ	A	Д	V	4	၁ ရ
2122	1013	2464	3823	6862	6153	6154	889D	890D	9720
Rio Arriba mine, sec. 7, T. 31 M., R. 1 E., Lower (40-inch) bed, 334-inch cut.	Algodones, 12 miles southeast of; see, 17, T. 13 N., R. 6 E., Sloon mine, Hopewell bed, 3-foot cut.  14 miles southeast of; 27 miles northeast of Albuqueque, see, 33, T. 13 N., R. 6 E., Hagan mine, main entry, 700 feet from mouth, Hopewell bed, 49-inch cut.	san Juan County.  14 miles northwest of; NW. ‡ SW. ‡ 17. 29 N., R. 15 W., Young of Stephens Carbonero (16-foot 109-meh) bed, 5-foot 1, 14 miles northwest of; sec. 21, T. 32 N. W., Jones mine, Carbonero 48foot 7-foot eut.	Futnam, I mile west of if T. Z. N., K., II W., South wall of Chaco Canyon, Pueblo Bonita mine, 60 feet from mouth, 94-inch bed.  Tiz Natzin, 25 miles northwest of Putnam, 2 miles up Coal Creek from Rio Chaco, in 50-foot drift, 38-inch cut.	Pecos, 64 miles north of, NE, 4 NE, 4 sec. 28, T. 18 N., I. 12 E., Cowles mine, Cowles bed, 15-inch cut.	Madrid, Madrid No. 1 mine, 200 feet in main entry, 34-inch cut. White Ash (?) bed.	White Ash mine (old slope), 120 feet in main entry, 54-inch cut. White Ash bed.	SOCORRO COUNTY.  Carthage, Bernal mine, Carthage (5½-foot) bed (700 feet south, room 2 off right entry 1), 58½-inch cut.	Same (870 feet south, left dip 2, 581-inch cut)	Same (run of mine)

Table of chemical analyses-Continued.

659		099	099	099	099	•	* * * * * * * * * * * * * * * * * * * *	099	000	099	099
290 381 290	290		* * * * * * * * * * * * * * * * * * * *	290	0876	261 148 148	290	14		#	
6, 644 11, 171 12, 209	7,069 11,038 12,557 12,735	6,822 10,042 11,907 7,250 10,737		6,158 10,627 12,247		6, 923 10, 714 12, 526	10,346	6,079		6,394 10,091	11,000
3, 691 6, 206 6, 783	3, 927 6, 132 6, 976 7, 075	3, 790 6, 615 6, 028 6, 965 6, 965	4, 148 6, 202 6, 735	3,421 5,904 6,804		3, 846 7, 952 952 952	5,748	5,826		3,552	50,'0
32.3	12.7	19.3	21.1	35.6	33.9	23.6	10.4		38. 5	28.9	29.3
	41.92 15.55 17.69 18.07					41.72 15.88 18.58					
	1.21 1.89 2.15 2.15					288	62.8	3			
	41.43 64.69 73.61 75.13					40.23 62.26 72.79	39.53				
8 1 1 1 8 1 1 1 8 1 1 1 8 1 1 1	6.54 3.97, 4.51 4.61					6.61 4.15 4.85	6.15				
	2.04 2.04	2.07	1.03	1.13	1.68	2.40	5.26	1.17		.71	1.06
6.05 8.49 5.28		10.64 15.66 5.81 8.60	5.30	7.66	6, 42	9.35	11.42	6.89	5.78	9.98	10.62
27.37 46.03 50.30 26.73		31.65 46.59 55.24 34.61 56.08				25. 68 39. 74 46. 46			29. 68 51. 48 57. 21		28. 91 46. 03 55. 30
27.05 45.48 49.70 26.11		25.64 37.75 27.76 27.11 40.14				29, 59 45, 79 53, 54	29, 19	\$4.53 \$3.49 \$3.49	22. 20 38. 50 42. 79		23. 29 37. 07 44. 61
40,53	35.96	32.07	33.12	42.06	42.81	35.38	32, 64	42.04	42.34	36.64	37.18
-00m	3 co → 63 co →	-00-00	o = 01 co	-0.00	-00	-0m	r → 63 m	-00	255	010	2 - 0 - 0
<b>4 4</b>	Ö	<b>m m</b>	=	4	~	υ	၁	<	4	4	<
1935	2243	7841	7839	1971	1972	1279	2289	7537	7538	7887	7589
Witon, 1 mile east of; Wilton (Washburn) mine, 9½-foot bed, 6½-foot cut (sample 1a).  Same (room 50 off east entry 1, north side, 3,300 foot from foot of foot for the sample 1a).	Same (lump lignite)	Howe, 8 miles cast of: 74 miles north of Morristown, S. Dak., NE. 4 sec. 5, T. 129 N., R. 88 W., outcrop, 26-indl cut. 9 miles cast of: 64 miles north of Morristown, S. Dak., El. 2 sec. 4, T. 129 N., R. 88 W.,	13 mies east of, 8 miles northeast of Morristown, S. Dak., SW. 4 see, 12, T. 120 N., R. 88 W., on Cedar Creek near old Black Hills trail ford, exposure in creek bank, 3-foot cut.  STARK COUNTY.	Lehigh, Lehigh mine (second south entry, 1,900 feet from mouth, 5-feet cut).	Same (first north entry, 2,100 feet from mouth, 62-foot cut).	Same (screened coal, Storrs shipment)	Same (run of mine, later shipment)	Same (north entry 6, 3,300 feet from mouth, upper 7-foot bed).	Same (south entry 4, 3,000 feet from mouth, upper 7-foot bed).  WARD COUNTY.	Pasker (Vanderwalker station), McClure mine (2,700 lost road, road, road, road off west entry 5, Upper 65f-	Same (200 feet north, room 2, off north entry 6, Upper 69-inch bed).

a Samples 1 and 2 from widely separated points in same mine.

Table of chemical analyses—Continued.

Reference.	Page of this bulle-tin.	199	662	662	662		:		)		663
Refer	Bul- letin No.				290	261	290			332	332
Calorific value.	British thermal units.	6,824 10,762 11,626	6,676	11,698 6,269 10,868	6,485	11,394	12, 401 7, 326 11, 473 12, 452	12,539 6,739 11,034	12,101		13,595
Calorif	Calo- ries.	3,791 5,979 6,459	3,709	6, 499 6, 038 7,777	6,120	6,	6, 374 6, 918 6, 918	6,966 3,744 6,130	3),0		7,795
	Air- dry- ing loss.	12.0	12.7	35.8	33.1	21.1	17.3	31.7		1.2	17
	Oxy-gen.					19.38	21. 24 45. 04 20. 22 21. 97	22. 18 20. 22 20. 66	75.07		
	Nitro-gen.					1.09	1. 24	1.125	1.22		
Ultimate.	Car- bon.					41.87	42.00 42.00 71.39	72. 12 39. 34 64. 41	₹0°0,	- : :	
D	Hy- dro- gen.					6.93	4.6.69 4.05 4.05	4.6.4. 4.2.89	4. o.t		
	Sul-	0.48 82 82	44	4.85	2223		1.00	79	98.	3.55	30000 20000 300000
	Ash.	7.54	4.02	8.20	5.36	5.09	5.04	5.39	***************************************	6.77	6.03
nate.	Fixed car-	25. 69 40. 52 43. 83	24.32	28.73 28.73 49.81	26.34	29. 97 47. 41 51. 56	29. 55 46. 26 50. 23	30, 15	04. I4	50.80	50.11
Proximate.	Vola- tile mat- ter.	32.93 51.94 56.17				28.16 44.54 48.44	29. 28 45. 84 49. 77	41.81	2		42.06
	Mois- ture.	36.60	38.92	42.32	41.13	36.78	36.13	38.92	•	3.32	3.10
	Con- di- tion.	-88	-63	∞ <del>−</del> α α		m = 00 m	4-00	4-00	, ,	-010	2-010
Sample.	Kind.	4	4	4	₩ ₩	Ö	0	Ö		4	4
Š	Lab- ora- tory No.	5470	5469	7600	1730	1416	2365	4276		3987	3988
	Locality, bed, etc.	NORTH DAKOTA—Continued.  WILLIAMS COUNTY. Williston, 3 miles northeast of, sec. 8, T. 154 N., R. 100 W., Williston mine, project of U. S. Rechmation Service (220 foct case of entrance, Middle	34 miles southeast of; T. 154 N., R. 100 W., Black Diamond mine (main entry, Middle (6-foot)	bed). Same (room 3 off west entry 1, south entry 1, Upper (794-inch) bed).	4miles southeast of; mine at mouth of Cedar Coulee (150 feet from opening, 6-foot cut).	Same (sereened coal, owner's shipment)	Same (run of mine, Reclamation Service shipment).	Same (run of mine).	OHIO, BELMONT COUNTY.	Bellaire, Empire No. 1 mine, No. 8 bed (sample 1, a room 3, off west entry 4, 601-inch cut).	Same (room 24, off entry 10, sample 2,a 584-inch cut).

		999	664	F99	664		665	665			999	999		999	
332	332			332	332	332	290	290	290		290	290	290		
	14,888 12,935 13,329					12,287			12,843 13,563 14,904 15,340		12,701	14,093	12, 179 13, 046 14, 708 15, 129	:	
	8,271 7,185 7,405				7,271	8.271 6,826 7,069	7,279	8,277	7,135 7,535 8,280 8,522		7,056		6,766 7,248 8,171 8,405		
2.6	1.3	1.8	1.7	1.7	1.9	1.6	1.8	E.8.	3.9		2.6	2.2	2.6	2.4	
	8.10 9.80 7.37					10.12	8. 44	* 1 *	10.93 6.55 7.21 7.49				7.00 7.89 8.19		
	1.23					1.17	1.40		1.12				1.20		
	80.46 70.21 72.36					66.64			70.71 74.68 82.06 85.36				67.38 72.18 81.37 84.58		
	5.47					4.81			5.39 5.07 5.57 5.79				5.30 4.88 5.51 5.72		
3.96	4.8.8. 3.65. 3.7.	33.30	28.62	252.44	4.30	4.32	0.0.0.0 49.0.0 7.0.0.0.0	3.49	3.33				3.78	2.31	2, 44
9.38		11.45	9.03	9.04	7.96	12.94	8.40	6.44	9.52		7.30	6.58	10.55	8.65	
47.18	54. 55 49. 45 50. 96	56.80 47.91 50.02	52.50 55.05	50.94 50.94	56.79 50.79	55.39 47.58 49.28	56.90 49.17 51.22	50.05 50.05 52.17	55. 92 49. 45 52. 22 57. 39				57.90 48.86 52.34 59.01		52.80
									38. 78 38. 78 42. 61				33.94 36.36 40.99		41.88
4.14	2.97	4.23	4.63	3.96	4.13	3.44	3.99	4.06	5.31		6.28	5.80	6.65	5.51	
-23	2012	ಣಈಯ	2-101	2000	2-0	n – 01	2000	2-070	2-010-4		-670	2-01	n → 01 co 4	<del></del> 0	7 00
C	C	æ	м	4	4	Ö	<	<	D D		4	<	0	В	
4151	4178	4053	4054	3985	3986	4157	2095	2096	2392		2090	2091	2656	4056	
Same (run of mine).	Same (run of mine)	Bethesda, 1 mile northwest of; Badgertown mine, Meigs Creek bed, 613-inch cut.	Flushing, 1 mile southeast of; Meigs Creek bed, 4-foot cut.	2 miles southeast of; Black Oak mine, No. 8 bed (2,000 feet west of shaft, 481-inch cut).	Same (1,500 feet southwest of shaft, 594-inch cut).	Same (lump, over 14-inch screen)	Neffs, Neff mine No. 1, No. 8 bed (room 12, off east entry 4, 2,000 feet southeast of drift mouth,	Same (room 3, oif west entry 2, 1,000 feet south- west of drift mouth, 68f-inch cut).	Same (run of mine)	GUERNSEY COUNTY,	Danford, Forsythe mine, No. 7 bed (room 1, off east entry 16, 2,600 feet northwest of bottom of	Same (room 22, of east entry 14, 3,700 feet northeast of bottom of slope, 703-inch cut).	Same (lump, over 14-inch screen)	Flushing (Belmont gounty), 2 miles north of; Meigs	Creek bed, 66-inch cut.

a Samples 1 and 2 from widely separated points in same mine.

Table of chemical analyses-Continued.

ence.	Page of this bulle-tin.	299	299	899	899	899		699
Reference.	Bul- letin No.			290 290 290	330 230	336	290	290 336 13
Calorific value.	British thermal units.	12, 247 13, 567 14, 269	11,684 13,523 14,220 11,266 12,915 14,180	12, 249 13, 379 14, 441	11, 515 12, 476 14, 332 14, 958 11, 898 13, 129	14, 335	11, 495 12, 632 14, 432 14, 981	13,147 13,703 14,908
Calorifi	Calo- ries.	6,804 7,537 7,927	6,491 7,513 7,900 6,259 7,175 7,878	6,805 7,433 8,023	6, 397 6, 931 7, 962 8, 310 6, 610 7, 294	7,964	6,386 7,018 8,018 8,323	7,304 7,613 8,282
	Air- dry- ing loss.	بن بن	3.20	3.7	6.7	5.3	3.6	1.7
	Oxy-gen.	18.58 11.00 11.58			14. 43 8. 22 9. 44 10. 02		15.27 7.98 9.11 9.60	
	Nitro-	1.25 1.38 1.45			1.120		1.20 1.32 1.51 1.59	
Ultimate.	Car- bon.	69.50 76.99 80.96			62. 49 67. 71 77. 78 82. 50		62.79 69.01 78.83 83.02	
	Hy- dro- gen.	5.70 5.38			5. 41 5. 66 6. 01		5.38 4.81 5.50 5.70	
	Sul-	0.54 .63		68.83 0.83 44.83	82.84 83.84 84 84 84 84 84 84 84 84 84 84 84 84 8	4. 4. 4. 5. 5. 28. 88. 88. 88.	4.02	3.67 3.82 4.16
	Ash.	4.43	4.23 4.90 7.78 8.92	6.73 7.35 10.51	11.95 12.95 7.62 8.41	9.34	11.34	7.75
nate.	Fixed carbon.	53.41 59.16 62.22	50.42 58.36 61.36 47.94 54.96 60.34	43.55 47.57 51.35 42.74 46.91	45. 33 46. 36 51. 05	55.74 43.89 53.20	43.80 48.14 54.99	49.70 51.80 56.35
Proximate.	Vola- tile mat- ter.	32. 44 35. 93 37. 78	31.75 36.75 38.64 31.51 36.12	41.27 45.08 39.25 40.65	38.32 41.52 47.70 47.70 40.54	45.28 46.29	35.85 39.40 45.01	38, 49 40, 12 43, 65
	Mois- ture.	9.73	13.60	8.45	7.71	8.95	9.01	4.06
	Con- di- tion.	-210	-00-00	-0100-0	1 to 01 to -4 01	m + 01 m		-38
Sample.	Kind.	(a)	۷ ۷	< <	O 4	, 4	O	<
02	Lab- ora- tory No.	7712	15188	1896	2071	1899	2109	1910
	Locality, bed, etc.	OHIO—Continued.  JIOCKING COUNTY.  Jobs, sees. 2 and 8, T. 13, R. 15, No. 2 mine, No. 6 (Middle Kittanning) bed, second break-though between rooms 3 and 4, off west entry 4, off south entry 3, 4600 feet from	Jackson, 5 miles west of; Decatur No. 1 mine, No. 1 bed (room 4, oil left heading 3, 650 foot northwest of opening).  Same (room 10, oil left entry 1, 600 feet northwest of opening).	Wellston, 9 miles southeast of; No. 10 mine, No. 4 bed (room 16, off right entry 4, 1,400 feet southwest of entrance, 3½-foot entry 4, 1,400 feet some (room 17, off right entry 4, 1,400 feet		itry 4, north side, 8 g, 31-inch cut).	Same (run of mine)	Bradley, Crow Hollow mine, No. 8 bed (room 9, off left entry 4, district 9, 3,000 feet northwest of tipple, 55%-inch cut).

899	699	070	029	029	029			671		672	672	
28.83.89	84		48	290	336	290		290 290 336 336	290	336	386.25	290
13,072 13,550 14,965				13, 325		13,178	Cartor	12,328 13,536 14,465	12,128 13,118 14,423			11,277 12,517 14,362 14,603
7, 262 7, 528 8, 314	8,505			7,403	007 (0	7,321 7,653 8,285 8,405	00 10	6,849 7,520 8,036	6,738 7,288 8,013	%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%	e no 'o	6,265 6,954 7,979 8,113
2.0	2.9		2.8	2.4	2.2	2, 4	0 0 0	ස ස ස	4.5	6.6	5.2	3.9
6.38 7.04	7.34		* * · · · · · · · · · · · · · · · · · ·			8.20 8.87 9.87	3		8.96 9.87			17.04 9.14 10.49 10.75
1.31 1.36 1.50						1.48			1.29	1. 59		1.23
71. 66 74. 28 82. 04						72.65 75.95 82.22 83.83			67. 02 72. 50 79. 71			63.06 69.99 80.31 82.20
5.45						12.4.7.7. 12.9.7.7.		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5.02			5.28
23.83.83.83.83.83.83.83.83.83.83.83.83.83	3.24 3.65 5.65	33.22.23	4.2.2.5	25.5	1.093	1.80		3.00 3.52 1.74 1.92	33.32.03	1.11	65.5	2.01
7.51 7.84 9.12 9.45		9.21	9, 45	6.01	5.70	7. 30		5.85 6.42 4.00 4.39	8.37 9.05	6.13	6.01	11.58
51. 13 53. 37 57. 91 49. 90 51. 73	2	53.89 59.36 54.36						46.65 51.22 54.73 47.81 52.46				44.86 49.79 57.13
37, 16 42, 09 37, 45 38, 82 42, 87		36.90 40.64 36.46 37.94						38. 58 42. 36 45. 27 39. 32 43. 15				33. 66 37. 36 42. 87
3. 53	5.27		5.19	4.69	4.09	4.34		8.92	7.55	10.78	9.79	9. 90
-08-08	4-00-	(O) (C) (C) (C) (C) (C) (C) (C) (C) (C) (C	m=010	o ≠ 61 m	- 67 5	. → 01 00 <del>4</del>			n → 0 n ·	# 01 m	-010	
< 0	<b>m</b> m	а п	m	4	4	Ö		4 4	0	4	4	0
1911	1577	1574	1575	1944	1945	2062		2119	2559	1900	1001	2144
Same (room 17, off main entry 2, district 2, 53‡-inch cut).  Same (over ‡-inch screen)	west of Ohio	io B	New Alexandria, I mile north of; Scott's country bank, Pittsourgh bed.	Rush Run, Rush Run No. 1 mine, Pittsburgh (or No. 8) bed (off left entry 1, 2,400 feet southeast of drift mouth, 514-linch cut).	Same (room 17, off entry 3, 2,600 feet south of drift mouth, 503-inch cut).	Same (over ‡-inch screen)	PERRY COUNTY.	Dixie, Dixie mine, No. 6 bed (first pair of east entries, 1,000 feet southeast of drift mouth, 364-inch cut).  Same first pair of west entries, 1,000 feet southwest of drift mouth, 364-inch cut).	Same (run of mine)	Shawnee, Gosline & Barbour mine, No. 6 bed (main entry, 500 feet northeast of drift mouth, 54-inch cut).	Same (seventh entry, 300 feet northeast of drift mouth, 588-inch cut).	Same (run of minc)

a Sample taken according to standard method of Bureau of Mines but not by Bureau of Mines or United States Geological Survey.

## Table of chemical analyses—Continued.

	02	Sample.			Proximate	mate.			D	Ultimate.				Calorifi	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro-gen.	Oxy- gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
OIIIO—Continued. TUSCARAWAS COUNTY.																	Table of the Control
	3968	4	357	5.61	36. 25 38. 40 42, 31	49. 42 52. 36 57. 69	9.24		0 0 0 0 0 0 0 0 0 0 0 0				1.3			332	673
Same (6,600 feet southeast of opening, 413-inch cut).	3969	4	-00	4. 46	39.89	49.31	8.94						1.1	7, 136	12,845 13,444 14,764	332	673
Same (lump, over 1½-inch bar screen)	4059	Ö	o 01 00	4.49	45.25 6.05 6.05 6.05	47. 43 49. 66 53. 91	7.53	3,0,0,0	5.42	69. 64 72. 91 79. 15	1.29	12.93 9.37 10.16	2.3	7,199 7,537 8,182	12,958 13,567 14,728	332	
VINTON COUNTY.																	
Clarion, Clarion mine, No. 4 bed (room 6, off east entry 4, 900 feet northeast of drift mouth, 43-inch	2208	4	-010	6.79	40.01	48.86	7.66	6.00 4.00 4.00 6.00 6.00 6.00 6.00 6.00					2.8	6,952	12,514	290	673
Same (butt entry 5, off main entry, 800 feet west of drift mouth, 40½-inch cut).	2209	٧	0-010	7.38	4.66	48.48	6.16	9278					3.4	0,100	11,02	336	673
Same (lump, over 14-inch screen)	2310	Ö	2400	5.59	48. 86 42. 80	52.18 57.20	8.78		4.88 4.51 4.95	69.76 73.89 81.01	1.18	12.74 8.23 9.01	3.2	7,096 7,516 8,240	12,773 13,529 14,832	290	
Same (nut and slack, through 14-inch screen)	2311	0	4-0	8.10	36.87	43.10	11.93	3.35	7.7.4. E7.53	84.07 63.54 69.14	1.1.	9.38 14.97 8.46	5.6	6,424	15, 241 11, 563 12, 582	290	
OKLAHOMA.			e2	:	46.11	53.89	:	4.19	5.31	79. 46	1.33	9.71		8,033	14, 459		
COAL COUNTY.																	
Coalgate, McAlester bed, slack, 4 tons	1596	0	75	8.03	31.28	41.40	19.29	3.20					3.5			261	:
Lebigh, No. 7 mine, McAlester bed, slack and pea mixed. 20 tons.	1481	రి.	∞ <b>– 01 m</b>	8. 20	43.03 30.61 33.38 45.92	26.97 36.05 39.31 54.08	25.05 27.31	5.95 5.93 5.93	4.37 3.76 5.18	50.98 55.59 76.48	1.19	14. 46 7. 73 10. 62	2.7	5,061 5,519 7,593	9, 934 13, 667	261	:

674	£29			675	675	929	929	929	7.29	677	229	677	229	<u>:</u>
260	260	261	1,8	260	260	260	260	260	500	260	260	260	260	333
	11,842	11, 228	200 (01	11, 468 12, 341 13, 970	13,840 14,177 15,586					13, 707 14, 125 14, 911		14,022	15,476 14,312 14,913	13, 662 14, 398 15, 728
	6,579	6, 238 6, 653 7, 744	H	6,371 6,856 7,761	7,689 7,876 8,659					7,615 7,847 8,284		7,790	8,598 7,951 8,285	50-1-05
1.6	1.9	1.4	5.0	3.0	1.9	1.2	2.3		1.5	1.9		2.4	3.0	
		14.20		14.57. 8.91 10.09	2.53 85 85 85							7.50		6.17 1.72 1.87
	1.29	1.36	3	1.44	1.55 1.59 1.75							1.81	2.00	1.60
		62.34		64.38 69.28 78.42	79.39 81.32 89.40							78.07		78.37 82.59 90.23
		86.44		5.13	4.57 4.41 4.85							5.50		4.30
				4.8.8.4 5.00 4.00 4.00 4.00 4.00 4.00 4.00 4.	1.03 1.05 1.15		9228	38.26.3	.1.0.0	1.05	.68	2,88	1.05	1.18
12. 13 12. S1	9.31	13.21	12.57	10.8‡ 11.66	9.04	11.73	6.60	5.35	5.63	5.12	6.60	6.26		8.03 8.46 bed.
				55.11 45.68 49.16 55.65	69. 54 71. 23 78. 31					55.95 57.65	72.52	58.83 58.89 60.80	65.00 63.45 66.11	68.65 73.21 77.15 84.28 shorne
37.54	45.46 39.01 41.72	37.26 39.74 39.74	35.50	36.41 39.18 44.35	19.26 19.73 21.69					35. 97 37. 07 39. 13		31.72	35.00 28.97 30.19	5.11   13.35   68.65 5.11   13.65   73.21 14.39   77.15 15.72   84.28 4 Lower Hartshorne
5.29	6.50	6.24	8.35	7.07	2.37	2.54	3.90	2.81	3.42	2.96	5.09	3.13	4.03	<u></u>
	m → 01	21010	0 C1	m + 61 m	-000			0 010	0-1010	2 61 65		100-0		~~~~
٧	V	C	C	٧	<	m	В	В	B	B	m	n	m	°
1150	1151	1470	1603	10054	10057	1817	1818	1769	1771	1770	1815	10065	1816	4020
milenorth of No. 5 mine, McAlester bed (south entry 8, slope 5, 4 foot cut),	Same (north entry 3, south slope, 58-inch cut)	Same (lump, over 1-inch screen, 5 tons, sample 1).	Samo (lump, sample 2)	14 miles southeast of, Lehigh No. 8 mine, McAlester bed, room 19, north entry 3, 2,000 feet north- west of shaft, 48-inch cut.	Chant, ½ mile east of, San Bois No. 2 mine, south entry 10, 2,700 feet southeast of opening, 78-inch cut. McCurtain (Hartshorne) bed.	Hughes, SE. 4 sec. 33, T. 6 N., R. 22 E., Turkey Creek mine, McAlester bed, 24-foot cut.	Lutic, sec. 11, T. 5 N., R. 19 E., Haltey-Ola mine, Lower Hartshorne bed, 65-inch cut.	Wilburton, sec. 10, T. 5 N., R. 19 E., No. 2 mine, Upper Hartshorne bed, 50-inch cut.	1 mile west of; sec. 8, T. 5 N., R. 19 E., No. 7 mine (Lower Hartshorne bed, 46-inch cut.)	Same, No. 6 mine (Upper Hartshorne bed, 50-inch cut)	Howe, 2 miles south of, S. 4 sec. 2, T. 5 N., R. 25 E., Macdoon Culf mine Loune Herishman had	Hughes (Latimer County), I mile southwest of; No. 2	slope mouth, 424-inch cut. 2 miles southwest of; E. 9 sec. 4, T. 5 N., R. 22 E., Lower Hartshorne bed, 46-inch cut.	Panama, run of mine (uninspected)

99500°—Bull. 22—13——11

Table of chemical analyses—Continued.

	02	Sample.			Proxi	Proximate.			D	Ultimate.				Calorifi	Calorific value.	Reference.	nee.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Volatile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy-gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
Henryetta, No. 1 mine, Henryetta bed (southeast entry, 38-inch cut).  Same (northeast entry, 354-inch cut)	1059	4 4	-00-	8.87	34.82 38.21 42.21 36.21	47.68 52.32 57.79	9.47	1.62			1.37		5.0	6,720 7,374 8,145	12,096 13,273 14,661	260	229
Same flum and close An tone	000	4 0	10100-		38.82	58.69	00.00	11.1.					7.0		1 0	760	22.0
42 miles west of; Victoria No. 1 mine (west entry 1,	11.58	) 4	-0.00-0	7.13	34.55 37.17 41.65 33.59	52. 06 53. 04 53. 04 53. 04	10.01	22.22.1.488.1.488	5.34	67. 55 72. 66 81. 43	1.25	9.25	2.6	6, 779 7, 292 8, 172 7, 147	12, 202 13, 126 14, 711 12, 865	26 48 260 261	829
Same (main east entry, 34-inch cut)	10177	Ą	7 m m m	7.50	38.77 32.89 35.56	50.97 50.97 55.10	9.34 9.34	1.70					2.6	7, 696 8, 250 6, 894 7, 453	13,853 14,850 12,409	260	829
PITTSBURG COUNTY.  Buck, Buck No. 6 mine, Lower Hartshorne bed (in	2645	<	es -		39. 23	54.88	7.56	1.75					7 6	8,221	14, 798	096	020
room 16, off main north level, 600 feet north of Shath, 55-inch cut. Same (in room 2 from first south plane, 400 feet south of shaft, 45-inch cut).	2646	4	101010	3.48	38.26 34.86 36.11	56.90 61.74 55.47 57.48	7.84 6.19 6.41	1.37						7, 824 8, 491	14,083	260	679
Carbon, sec. 6, T.5 N., R. 16 E., Central mine, Lower Hartshorne bed, 3-foot cut.	1735	В	∞ <del>–</del> 010	3.17	38.58	61.42 58.94 60.87	4.56	1.29					1.0			260	649
2½ miles east of; boring No. 9 at depth of 551¾ feet, 2-inch core through McAlester bed, 38-inch	6225	В	2400	2.09	27.59 27.59 28.18	50.25	20.07	5.73	4.46	63.66	1.33	2.95	1.0	6, 497	11,695	260	089
Chambers, Chambers mine, McAlester bed	1743	g	2-101	3.46		47.09	9.35	3.54	- 1 1	81.79	1.71	3.71	1.2		15, 025	260	089
Coleman, sec. 9, T. 4 N., R. 16 E., Bolen Darnall mine, McAlester bed, 34-foot cut.	1757	М	м н и и и и	3.61		54.01 57.40 59.55 61.75	3.43	84.06					1.0				089

																10.
080	(580)	189	189	681		180	681				681	682	682	682	683	683
200	200	260	260	260	261	332	332	261	355	332	333	260	500	260	260	260
13, 495	14, 764 13, 316 13, 833	14,576 13,574 14,150	14,755	12,591	12,319	14,020	15, 237	12, 607	11,837	14,900 13,320 13,705	15,061 13,885 14,393	15, 165	13,748	14,990 12,710 13,315	14,627	13, 023 13, 729 14, 591
7, 497	7,398	8,098 7,541 7,861	8, 197	6,995	8,062 6,844 7,175	7,800	8, 465	7,330	8,392 6,576 7,016	8,278	8,367 7,714 7,996	8, 425	7,638	8, 328 7, 061 7, 397	8, 126	7,235 7,627 8,106
1.1		1.8			1.2			oc - c1	6.4	7.1		oi .	1.0	1.9	1.6	61
13.08	9.22	10.23			11.46	× (4		11 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	8.5.58 5.5.58	7.6.9	17 Q Q ;	6. 95		7.92		
1.89	1.06	1.81			1. 48	11.1		1.55	1112	888	888	5. 10		1.68		
73.52	24.43 7.48 7.28 7.29	81.91			70.62				25.85 15.85					70.09		
	2.5.4. 2.2.2.9.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.				3.88	6.			25.84					4.91		
86.	822	22.52	9.6.2	#12 X	4.4.4.4. 8.8.2.1	5891 #==;	388	 	1.79	888	9333 8333	828		388	547	3888
5.49	5.11	3.93	8.38	10.30	11.14	6.40	7.65	11.00	14.29 15.25	9.00	5.09	12.8	4.90	8, 56		5.61
								57.30	47. 07	55.55 55.55 55.55 55.55 55.55	59.17 55.22 57.24	58.23 61.01	59.33	62.51 49.40 51.74	56.84 54.43 57.21	5.8.8.2 5.8.8.8 5.8.8.8
								42, 71 36, 15 37, 83 49, 75		40.75 36.11 37.15	36.34	32. 45 34. 00	85.88 88.88 88.88	37.50	43, 16 35, 59 37, 41	35.86 38.11
3.10	3, 73	4.07	2.97	2. 93	4.61	1.46	1.30	4.45	6.27	2.81	3.53	4. 59	3.39	4.54	4.86	5.14
-010	20 H C1	m → 010	9 H 03 C	2000	n → n :	0 11 01 0	D C1	eo → 01 eo	4-01	m → 01	m — 01 c	n 01	m 01	20 61	co ← c1 :	m → m
a	8	д	٧	V	0	V	<	Ü	2	O	7:	=	2	4	=	=
6224	6118	1715	1079	1080	1274	1071	1073	1184	3405	3406	10053	1737	1736	10060	1745	1744
Craig, 3 miles east of; boring No. 7 at depth of 4414 feet, 2-inch core through McAlester bed,	h, 60° E.	No. 6, McAlester bed, 34-foot cut. Dow, sec. 26, T. 5 N., R. 16 E., Milby & Dow mine, McAlester bed, 35-inch cut.	Edwards, No.1 mine, McAlester bed (east air course 2, 48-inch cut).	Same (west air course 2, 46½-inch cut)	Same (run of mine, 25 tons)	Hartshorne, 1 mile from: No.8 mine, Lower Hartshorne bed (room 16, off west entry 7, 46-inch cut).	Samo (room 14, off main east entry 7, 534-inch eut).	Same (run of mine, 20 tons)	Samo (slack, through g-inch sereen)	Same (lump, over 1-inch sereen)	Same (east air course 8, 4,100 feet west of shaft, 48½-inch cut).	McAlester, No. 2 slope, Valley Mine, Lower Hartshorne bed.	McAlester No. 3 mine	Phtsburg, McAlester-Edwards No. 1 mine, McAlester bed, left entry 5, off east entry, 1,300 feet N.	14° E. of slope mouth, 43-inch cut. Savanna, No. 1 mine, McAloster bed	Savanna No. 1 slope

Table of chemical analyses-Continued.

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Reference.	Page of this bulle-	<u> </u>		683	684	684	684	685	989	989	989
Refer	Bul- letim No.	096	700		431	431	431	431	431	431	431
Calorific value.	British thermal units.	10 070	13,329 14,747	13,786 14,326 15,111	9,626	10,764	8,912 10,863 12,467	9,054	8,984 10,300	10,348	14, 618 8, 490 11, 306 12, 659
Calorifi	Calo- ries.	2 310	7, 405 8, 193	7,659 7,959 8,395	5,348	5,0017 7,0017 1004	6,935	5,833 8,833 8,833	25.75	7,263	8,121 6,281 7,033
	Arr-dry-ing loss.	1	7	1	7.0	8.1	6.8	 	1.6	11.3	9.
	Oxy-gen.	5	8.31 9.30			28. 23 16. 58					
	Nitro- gen.	t u	1.61	* * * * * * * * * * * * * * * * * * *		1.19	3 : : :				
Ultimate.	Car- bon.	G E	74.52 82.45			51.07					
	Hy- dro- gen.	5	5.03			5. 53 7. 46 9. 90	3				
	Sul-	i.	1.39	2.23.34.46.33.44	. 74		3.22.27	5.04	1.30	1.17	1.65
	Ash.	ž.	9.37	5.20	8.07	13.17	10.55	7.46	14.23	8.37	8.03
mate.	Fixed carbon.	ç L	54.53 56.01 61.97	53.79 55.89 58.95	43.20	39. 62 47. 23	39. 72 39. 72 55. 57	46. 72	43.76 16.76	36. 75 46. 43	51.90 27.27 36.31 40.67
Proximate.	Vola- tile mat- ter.		34.37 38.03	37. 44 38. 91 41. 05	34. 46	31. 10 37. 07	33.72 38.72 44.43	32.05	39.83	34. 04	59.80 59.80 59.83 59.83
	Mois- ture.	8	2.63	3.77	14.27	16.10	17.96	13.77	12. 78	20.84	24.90
	Con- di- tion.	,	H 0100	-0.6	634	m → 010	o <del>⊢</del> 03 €0	- 010	o 01 0	2 – C	e = 01e
Sample.	Kind.	;	<b>=</b>	д	a	B	a	В	В	В	B
ŭ	Lab- ora- tory No.		2921	1738	*9151	*9152	*9188	*9322	*9245	2461	2462
	Locality, bed, etc.	OKLAHOMA—Continued.  PITTSBURG COUNTY—continued. Savanna—Continued.	1 mile southeast of; in tract 69, NE. 4 SE. 4 sec. 16, T. 4 N., R. 14 E., bore hole No. 2, Lower Hartshorne bed, 35-foot cut, from a 2-inch	South McAlester, Great Western mine OREGON. coos county.	Beaver Hill, 1 mile southwest of: sec. 17, T. 27 S., R. 13 W., Beaver Hill or Newport bed (room 5, 700	feet northwest of mouth, 65-inch cut). Same (1,000 feet southeast main entrance, 72½-inch cut).	Coquille, 1 mile north of; sec. 36, T. 27 S., R. 13 W., Peart Bros.' mine, 480 feet down main slope and 140 feet was, inside entry, Newport bed,	Lampa, 4 mile west of; see. 36, T. 28 S., R. 14 W., Happy Hooligan mine, Hooligan bed, wall of	aniles southeast of sec. 4, T. 29 S., E. 13 W., Alboo mine, Albee (52-inch) bed, 3-foot cut.	Libby, 3 miles southwest of Marshfield; sec. 4, T. 26 S., R. 13 W. Chird gangway west. 1,000 feet from	mouth of mine, 7½-foot bed, 5-foot 11-inch cut). Same (first gangway west, 900 feet from bottom of slope, below water level, 82-inch bed, 5½-foot cut).

431   686			431 688	431 689	431 689	431 690	431 690	431 691	431 692	431 692		290 693 236 693 220 693	580 880 880	100
8.760	10,980 12,520 8,575	10, 757 12, 920 8, 400 10, 460	12, 630 7, 769 9, 587	12,150	12, 150 10, 080	8,017	10, 8, 615 10, 260 200 200 200 200	9,319	9,736 11,588	8,068 10,451 12,251		13,874 14,402 15,269	13, 997 14, 371 15, 345	15, 503
48	0,0,4	. 7,976 4,665 5,810	JE-4,72	6,750 5,230 1,260	4,340	) 4, re	0.04.7.7.0.1 0.00.7.7.7.0.1 0.00.7.7.0.1	5,177		6,806 6,806		7,708 8,001 8,483	7,776 7,984 8,525	8,613
14.8	15.3	13.6	8.6	14.8	17.1	16.8	r.;	6.3	6.2	11.4		1.8	1.3	~
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-		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0											21 77. 05 79. 39 84.	47 85.
2, 15	1.02	1. 28 1. 54 1. 00	1.20	6.45	3888	35.35			22.947		-	1.43	2.2.2.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3	
	12.3	16.76		17.8	12.8	13.54		8, 46 10, 28	7.70	11.34		5.46		13.55
36.5	45.7 52.0 32.24	45.55 5.05 5.05 5.00 5.00 5.00 5.00 5.00	52. 5 35. 44 43. 73	25. 43 20. 6 20. 9 20. 9	25.55.2 0 21-20	31. 77	25.22 25.22 35.22 35.22	50.93	44.65 46.83 48.83	52.28 52.28 52.28			25.88.25 25.88.25 25.88.25	
		31.5 39.5 39.5											883.438 883.888	
1 20. 2	1 2 2	19.	18.96	19.6	22.5	23.19	16.03	17. 73	15.98	22.80		3.67	19.2	2 25
-	10100-	0100-01	co c₁	eo ← e1 e	2-010	00	100-010	0 010	0 to the co	0 0100			71 co co fc	41 -
- B		m	m	<b>m</b>	22	=	<u>n</u>	=	<u>=</u>	<b>a</b>		< <	<u>ي</u>	=
1 *9124		*3127	*9187	*9125	*9126	*9128	*9312	*9313	*9311	*9189		2080	5559	1048
Marshfield, 1 mile southwest of: sec. 34, T. 25 S., R. 13	cut. R. 13 W., Wat	works mine, 700 feet in inine, Waterworks 4 miles southeast of; see, 4, T. 26 S., R. 12 W., Coos Bay field. Lillian mine (not in operation), 620	fooin, Lillian 98-inch bed, 63-foot cut. Maxwell, 2 milosoutheach of, see, 36, 17, 26, 1R. 13 W., Smith & Power mine, 150 feet in, 54s-inch	Ded, 37-inch cut.  North Bend, sec. 15, T. 25 S., R. 13 W., Wilcox mine (180 feet in, North Bend No. 1 bed, 16-inch cut).	Same (North Bend No. 2 bed, 200 feet in mine, 1½-foot cut).	3 miles northeast of, on Kentuck Slough, NW. 4	Mine, Stova 10-foot bed, 84-foot cut. Riverton, Eureka mine, Eureka 44-foot bed, 250 foot in, 4-foot cut.	Gage mine, Timon (494-inch) bed, 450 feet in, 31-inch cut.	Sec. 9, T. 28 S., R. 13 W., Old Rouse mine, Burker (28-inch) bed, 100 feet in, 27-inch cut.	Sumner, 2 miles north of; sec. 20, T. 26 S., R. 12 W., Neweastle mine, 150 feet southeast of mouth, Neweastle 43-inch bed, 35-inch cut.	PENNSYLVANIA.	Bruceton, Bertha mine, Pittsburgh bed (face entry 1, off butt entry 1, 5,000 feet from drift mouth, 094-inch cut).  Same (face entry 3, 5,000 feet from drift mouth,	042-nch cut). Same (through 3-inch sereen)	Clinton. country bank. Pittsburgh (63-inch) bed.

Table of chemical analyses—Continued.

1 4	is see	695 : 694	695	969
Reference.	Page of this bulle-tin.	:	0 978	: : : :
	Bul- Il letin No.	## ## ## ## ## ## ## ## ## ## ## ## ##	*	<u> </u>
Calorific value.	British thermal units.	13, 356 15, 093 15, 093 15, 093 15, 093 16, 223 17, 082 14, 082 14, 150 14, 150 14, 150 14, 150 14, 150 14, 150 15, 347		14, 422 16, 915 15, 833
Calorif	Calo- ries.	7,420 8,385 7,120 7,120 7,120 7,855 7,825 7,825 7,825 8,934 8,034 8,034 8,034 8,034 8,035		8, 286 8, 796 8, 796
	Air-dry-ing loss.	0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1.9
	Oxy- gen.	2,45,55,55,55,55,55,55,55,55,55,55,55,55,		
·.	Nitro- gen.	111111111 22446488864		
Ultimate.	Car- bon.	25.28.8.28.25.25.25.25.25.25.25.25.25.25.25.25.25.		* * * * * * * * * * * * * * * * * * *
	IIy- dro- gen.	00 1 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		
	Sul- phur.	48888544848 8888844848	3.32 3.78 3.78	2000202020202020202020202020202020202020
	Ash.	88 98 99.21 7.53 7.756 7	11.85	1.7. 3.3. 10.10. 3.0. 1.0. 4.0. 3.0. 1.0.
Proximate.	Fixed carbon.	6.55 55 55 55 55 55 55 55 55 55 55 55 55	50.15 51.45 58.57	2748712547782578 x x 2 2 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Proxi	Vola- tile mat- ter.	84888888888888888848 64888888888888888 4488888888	35.49 36.40 41.43	12.5 19.5 19.5 19.5 17.5 19.0
	Mois- ture.	2	2.51	2 x m m
	Con- di- tion.		H0100	
Sample.	Kind.	4 4 0 4 4	m	< < < <
J	Lab- ora- tory No.	3437 3438 3879 6627 6656	1067	8993 8994 8994
	Locality, bed, etc.	PENNSYLVANIA—Continued.  Alleghron creighton mine, Upper Freeport bed (4,800 feet northwest of opening, 63½-inch cut).  Same (5,500 feet northwest of opening, 59½-inch cut).  Same (run of mine)  19, off south entry 14, off face entry 1, 4-foot 9½-inch bed, 3-foot 11-g-inch cut).  Same (room 19, off north entry 1, 4-foot 9½-inch bed, 4-foot 4½-inch cut).  REAVER COUNTY.	Frankfort, north of, country bank, Pittsburgh bed CAMBRIA COUNTY.	Bakerton, Sterling No. 1 mine, Lower Kittanning (B) bed (left entry 3, off main entry, 4,100 feet S. 45° E, from drift mouth, 37-inch cut).  Same (main entry, 5,600 feet S. 6° E, from drift mouth, 38-inch cut).  Same (pillar 2 off right entry 2, off main entry, 1,200 feet S. 10° W. from drift mouth, 38-inch cut).  Same (room on left entry 3, off dip entry, 3,200 feet S. 15° W. from drift mouth, 38-inch cut).

969	096 769 769	769	698	869	699 699 699 699
14,310 14,740 15,840	14, 320 11, 790 15, 750	14, 160 14, 560 15, 640	14, 170 14, 660 15, 750 114, 049	15, 703 13, 820 14, 207 15, 633 13, 709 14, 346 15, 572	14, 251 14, 706 14, 706 14, 224 15, 609 16, 128 17, 128 17, 198 17, 198 17, 611 17, 685 18, 685
8, 190 8, 800	8,220 8,220 7,750	7, 870 8, 090 8, 690	8,145 8,750 7,805 8,010	8,724 7,678 7,893 8,685 7,970 8,651	7.83.87.83.7.83.7.93.7.93.7.01.01.01.01.01.01.01.01.01.01.01.01.01.
0 7 G	9 9 8 6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	93 89	s : 8 : 8	a	oi oi oi oi
68.89 98.89 98.89	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±		98888 98888	3. 05. 70 3. 12. 57 3. 12. 57	
11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	33.37		1.05	1.30	
88.255 88.71 88.71	888 884		25888	88.38 88.38 88.34	
44 44 8 8 8 11	444 388		4.4.4.9. 80.07. 92.07.		
24.75.25.25.25.25.25.25.25.25.25.25.25.25.25	222282222	8228228	2022222		11111111111111111111111111111111111111
6.0 6.0 5.7 6.0 1.0 5.7 7.7 7.7 7.7 7.7 8.7		6.9	6.69 6.92 7.97 8.18	8.87 9.12 7.53 7.88	6. 25 6. 45 6. 58 6. 68 77 6. 68 75 6. 68
41074288	0.854.955.85 0.40.851.85 0.40.81.80 1.40.81	812783.1.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0	77.4.1.4 77.4.1.4 667.69	725.66 66.40 725.84 725.04 725.04 725.04 725.04 725.04 725.04	772.27 65.77 66.78 66.78 67.89 67.89 70.50 70.50
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8991	9034 8996 8997	8998	9052	7957	7963 10285 10286 10262
Same (composite of Nos. 8992, 8993, and 8994)  Sterling No. 5 mine, Lower Kittenning (B) bed (block entry off main entry, 1,400 feet N. 50° B. from drift mouth, 23%-inch eut).  Same (right entry 7, off main entry, 2300 feet N. 30° B. from drift mouth, 33%-inch eut).	8990 r ttann entr 1,2-foot feet ut).	Same (pillar of entries 2 and 3 off dip entry, 320 feet 8, 45° W. from drift mouth, 34-inch ent).  Same (right entry 3, off left entry 2, 4,800 feet 8, 45° E, from drift mouth, 324-inch eut).	S. 60° W. from drift mouth, 344-inch cut). Same (composite of Nos. 8996, 8997, 9046, and 9047).  Barnesboro, Lancashire No. 10 mine, Upper Freeport bed critich bredding 4, 444-inch cut).	Same (right heading 5, 391-inch cut).  Lancashire No. 12 mine, Lower Freeport bed (left heading 11, 53-inch cut).	Same (right heading 13, 53‡-inch bed, 50½-inch cut).  Inlie northeast of; Delta mine, Lower Freeport or D bed (left entry 16, off main, 5,500 feet from drift mouth, 46-inch cut).  Same (left entry 14, off main, 50½-inch cut)  Same (room 30, left entry 12, 4,500 feet from drift mouth, 48½-inch cut)

Table of chemical analyses-Continued.

.00	Page of this buille-tin.	. 669 669 600 600 600 600 600 600 600 600	102
Reference.	Bul- letin No. bu	200 200 200 200 200 200 200 200 200 200	: 530 530 530 530 530 530 530 530 530 530
	British thermal units.	14, 108 15, 108 15, 108 15, 101 16, 101 17, 101 17, 101 18, 101 18, 101 19, 101 10, 10	14, 279 115, 890 116, 013 116, 013 117, 641 117, 020 114, 474 116, 673
Calorific value.	Calo-	2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2	88,7,886,7,886,7,886,7,886,7,886,7,886,7,788,0041
	Air-dry-ing loss.	4 0 0 0 0 0 0 0	2.30
	Oxy-gen.	30 de	7.2.2.2.2.2.2.3.1.1.2.8.91 11.2.2.3.1.4.1.2.2.1.1.2.2.2.2.2.2.2.2.2.2.2.2.2
	Nitro-gen.	888	36 32 32 32 33 36 36 36 36
Ultimate.	Car- bon.	88.88 8.20.88 8.00.83	88.64 99.75 77.23 88.14
D	Hy- dro- gen.	.0.4.0. 0.8.1 0.1.8	5.5.4.4.6.4.6. 5.5.4.4.6.4.6. 5.5.4.4.6.4.6.
	Sul-	11111111111111111111111111111111111111	94 1.05 1.17 1.14 1.34 1.34 1.38 88
	Ash.	6.56 6.56 6.46 6.59 11.25 11.25 11.25 11.25 11.25 10.31 5.71 5.71 5.82 5.83 5.83 5.83 6.84 6.84 6.84 6.85 6.85 6.85 6.85 6.85 6.85 6.85 6.85	6.63 6.87 6.91 7.31 7.41
mate.	Fixed carbon.	\$656\$6569155585448459454 645848888888888884588	73.04 81.28 81.28 65.23 69.00 74.44 74.44 77.50
Proximate.	Vola- tile mat- ter.	84282824464555555 8446454555555 844645888835559	16.82 17.43 18.72 18.72 22.40 23.69 22.55 22.63 24.50
	Mois- ture.	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3.51
	Con- di- tion.		
Sample.	Kind.	< < < ¤ ¤ < <	ъ в с
	Lab- ora- tory No.	10287 10263 10292 3836 3825 2014	2152 7970 7968
	Locality, bed, etc.	PENNSYLVANIA—Continued.  camenta county—continued.  Barnesboro, Delta mine—Continued. Same (left entry 1s, off main, 6,500 feet from drift mouth, 523-inch cut).  Same (pillar on right entry 2, off main, 2,000 feet from drift mouth, 394-inch cut).  Same (composite of 10262 and 10285-10287)  Dale (near Johnstown), Dale mine, Upper Kittanning (C') bed, 32-inch cut.  Colos Yard) 43-inch bed.  Ehrenfeld, No. 3 mine, Lower Kittanning (Miller) bed (left entry 2), 23 miles from drift mouth, 48-inch bed, 444-inch cut).  Same (main entry, 24 miles from drift mouth), 45-same (main entry, 24 miles from drift mouth), 45-same (main entry, 24 miles from drift mouth), 45-same (main entry, 24 miles from drift mouth),	Same (run of mine).  Emelgh, Victor No. 15 mine, face of heading, Lower Freeport, 45-inch bed, 44-inch cut.  Same (401-inch cut)

702	702	702 703	703	F02	705	707
316		316 447	332	332 316 447	316 447 447 447	316 447 316 447
	13,464 13,948 13,824 14,296 15,728	14, 089	41,	15, 376 15, 376 15, 376 13, 469 13, 860	15,674 14,081 14,373 15,683	13, 286 14, 074 15, 649
	7, 749 7, 749 7, 749 7, 680 7, 942 8, 738	8,715	1 1 1 1 1 1 1	7,78,77,7,8,7,7,8,7,7,8,7,7,8,7,7,8,7,7,8,7,7,9,8,7,9,8,8,9,8,8,8,9,8	8, 708 7, 823 7, 985 8, 713	7,381 7,819 8,694
3.0	2. 2. 5		6, 6,	6 6	2.3	2.2
		2.73		8.62 5.05 1.34 1.88	2.2.4.2. 2.4.2.4.2. 4.0.4.1.3.	
		1.29		1.28 4.46 1.22 1.22 1.20	1.26	
		79. 44 88. 40		75.92 79.29 86.39 76.48		
		5.30		4.4.4.4.4.4.29 4.29.4.29	4. 63 4. 14 3. 99 4. 37	
22.2.1.1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	1.1.2.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	22.1.2.93 2.1.98 3.1.98 4.158 4.158	3.52 1.1.1.1.25 1.57 1.57	2.2.1.1.59 2.4.2.2.2.4.2.2.2.2.2.2.2.2.2.2.2.2.2.2	23882238882 2388233882 2388233882	25.44.1.1.1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
6.78	10.61 10.99 8.81 9.11	10.19 7.63 7.84 10.67	10.85 6.79 6.99 7.23	7.87 8.22 11.25	8.19 8.36 10.29 10.66	9. 22 9. 68 9. 68 9. 83 9. 83 10. 06
71.18 73.73 79.09 72.85 75.16	80.51 63.40 71.46 71.79 72.75	64. 92 72. 28 74. 03 76. 09 82. 56 69. 14	70.32 78.88 67.71 69.70 67.37	74.83 66.09 75.20 72.32 73.32	81.83 75.31 76.87 83.88 69.04 71.56 70.77	72.17 72.27 77.28.86 77.4.86 77.0.86 77.0.86 83.47
18.82 19.49 20.91 17.64 18.20	<b>6</b> 24.88.42.88.4 <b>6</b> 26.43.64.68.4	22.28 15.72 15.03 17.03 18.03	81252323 81252325 868325 8683	25.17 22.76 24.80 15.61	18.17 14.47 16.12 17.78 17.78 19.90	16. 12. 13. 26. 13. 26. 13. 26. 13. 26. 13. 26. 13. 26. 13. 26. 13. 26. 27. 27. 27. 27. 27. 27. 27. 27. 27. 27
3.45	3.30	2.70	2.86	4.25	2.03 3.51 1.94	2. 93 6. 60
			0			поновновной,
д д	4 4 4	: д д	4 4	D H	р д д	я <b>я</b> ч .
3809	10278	3840	4028	4169	3838 3844 3833	4012
Expedit (Twin Rocks), near Big Bend, Nonparell No. 1 mine, Lower Kittanning (B) bed.  No. 3 mine, Lower Kittanning (B) bed, right heading 4.	Fallen Timber, Peerless No. 4 mine, Upper Freeport or E bed (right main entry, 1,230 feet from drift mouth, 29g-inch eut). Same (left main entry, 1,200 feet from drift mouth, 27g-inch cut).		Ded about 5 reer.  Hastings, No. 20 mine. Lower Freeport (1)) bed, in room 19 off left heading 29, several hundred leet from opening (sample 1,e 53-inch ent).  Same in 24th right heading (sample 2,e 47-inch ent).	Same (run of mine).  Johnstown, Ferndale mine, Upper Freeport (E) bed, main bench, 3½-foot cut.	Greenhill mine, Lower Kittanning (B) bed, (31-foot cut).  Lifsinger mine (on Solomon's Run, southeast of Jonesown), Upper Kittanning (C') bed, (37-inch cut), Upper Kittanning (C') bed, Rolling, Mill mine, Upper Kittanning (C') bed,	Stony Creek prospect, near trolley bridge between Moxbom and Ferndale, 10 feet from outcrop, Lower Freeport (D) bed (3&-inch cut). Sunnyside No. 2 mine (at Moxbom), Upper Kittanning (C') bed, bed about 4 feet.  14 miles fron; Sunnyside mine, Upper Kittanning or C' bed (main entry, 4&-inch cut).

a Samples 1 and 2 from widely separated points in same mine.

Table of chemical analyses-Continued.

nce.	Page of this bulle- tin.		707	707	202	707	202	707	707	707	208	208	
Reference.	Buil- letin No.		147	447	447	447					332	332	332
Calorific value.	British thermal units.		13, 540 13, 993 15, 593	13, 325	13, 696 14, 038	13, 435	14, 243	13, 428 14, 755 15, 741	13, 979 14, 683	13,828	79, 60	13,995	13, 682 14, 321 15, 718
Calorifi	Calo- ries.		7,527	7,403 665 685	996.5	7,464	7,914 8,195	8, 197 8, 197	8,157	8,179	0) (0	7,775	8,77,60 8,732 845
	Air- dry- ing loss.		o ci	2.9	2.1	23.52	2.7	8.2	ග ආ	5.5	1.9	2.2	7
	Оху-					1.59				7.97	S : :		28888
	Nitro- gen.					355	2			1.38	Q# :- :		8248
Ultimate.	Car- bon.					\$0.10 80.10	03.40			79.24 84.37	00.01		88.05 88.05 88.05 88.05
ū	Hy- dro- gen.					4.40	TO *#			4.06	4.96		83228
	Sul-		284 266	288	RESE	19:21	128	2882	15.25	3828	1.34.65	3.05	1.49
	Ash.		9.93	10.91	9.75	10.07	5.92 6.13	5.70	6.69	6.23	6.61	8.56	× × × × × × × × × × × × × × × × × × ×
nate.	Fixed car-		72.88	71.56	37.73	24.73	73.14	80.69 68.57 75.35	71.42	73.74	87338	73.13	71. 63 74. 97 82. 27
Proximate.	Vola- tile mat- ter.		14.01	1222	5.24 15.24 15.24 15.24	15.00	17.51	16.74 18.39	18.30	20.03	17, 75	18.08	19. 82 15. 44 16. 16 17. 73
	Mois- ture.		3.18	3.30	2,44	3.74	3.43	8.99	4.79	6.08	2.43	2.66	4.46
	Com- dil- tion.			o → 03 :	m 01 c	211010	2-1031	2240	24010	0-101	2-010	2-101	n=0100=
Sample.	Kind.		<	٧	٧	<	V	4	4	V	٧	V	. 0
02	Lab- ora- tory No.		10252	10251	10250	10270	10325	10326	10327	10328	4347	4348	4509
	Locality, bed, etc.	PENNSYLVANIA—continued.  cambria county—continued. Johnstown, Sunneside mine—Continued.	Same (leff entry 3, 42-inch cut)	Same (right entry 3, 42-inch cut)	Same (left entry 1, 4,800 feet from drift mouth, 42-inch cut).	Same (composite of Nos. 10249-10252)	Lilly, Sonman No. 2 mine, Lower Kittanning or B bed (room 26 off left entry 7, 5,500 feet west of	mine mouth, 46-inch cut). Same (room 9, off right entry 3, 5,000 feet north of mine mouth, 44-inch cut).	Same (pillar in room 6 off right entry 2, 4,200 feet north of mine mouth, 37½-inch cut).	Same (composite of 10325 and 10326)	Lloydell, Cambria mine, Miller bed (room 10, left head- ing 3, 2,500 feet south of drift mouth, 421-inch	Same (left heading 5, 3,200 feet south of drift mouth, 39-inch cut).	Same (run of mine)

602	200	200	500	709	710	710	111	711	711	711	711	712	712	712	712	712
14	12	17	447	4	316	316		:	:	- :	:			-		-
14, 561	14,182	14, 576	14,824	10,000			14, 117	13, 88 14, 88 14, 80 14, 80 14	12, 539	12, 430 12, 75, 430 12, 881	13, 637	14,324	15,734	14, 081 14, 612	14, 418	14,369
8,089	8,879 8,019	8,096	8,8,8,0 2,8,0 2,8,0 2,8,0 2,8,0 2,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3	0, 633			5,160 8,160	7,7,8 67,8 80,8 80,8 80,8 80,8 80,8 80,8 80,8 8	7,098	7,091	7,325	2, 958 8, 198	8,741 8,220	8,7,823 1118 20,823	8,000 010 010 010 010 010	8,251 8,747
					2.1	2.0	3.1	1.9	3.0	7.	2.6	oi oi	2.5	. c.s.	60	∞ oi
				2.27				350								
				1.25			1.32	1.1.2	1.31							
				81.76 82.66			79.41 82.62	88.88 88.88 88.88	88. 12							
				4.74	70.00			3925								
1.88	101010 1288	11:15	27.25	188	12.5	848	1881	1.72		2.03.	4.25.25 \$&8.00 	888	2225	2888	3888	1.09
6.01	8.16	5.74	6.22	6.8	6.25	6.28	6.52	8.35	13.19	17.31	11.68	6.03	5.69	6.5	4.98 5.18	5.49
73.36	71.15	12.75	73.09	5255 586 586 586 586 586 586 586 586 586 5	16. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15	25.55 25.25 25 25 25 25 25 25 25 25 25 25 25 25 2	67.08	65.77	64.47	59.28	65.23	74. 56	73.51 75.86		17.72	73.9 76.39 80.98
20.14	20.28	20.52	20.02	28.82	17.76	17.85	22.22	88.25	25.65 25.65 25.65	3222	22.72	16.98	17.71	16.61	17.09	17. 36 17. 94 19. 02
1.85	1.75	2.25	2.86	1.09	2.79	2.63	3.88	2.71	4.00		3.32	2.93	3.09	3, 63	3.78	3.25
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٠.	٠.	<	<	~	=	m	A	B	A	a	a	4	٧ .	<	<	<
381	382	383	384	10452	3855	3889	7962	7959	7955	7965	7961	10293	10294	10295	10296	10297
Nanty Glo, Cardiff mine Lower Kittanning or B bed (main entry, 4,000 feet from drift mouth, 383,nob ent)	Same (left entry 7, 2,800 feet from drift mouth, 38½-inch cut).	Same (right entry 6, 2,100 feet from drift mouth, $423$ -inch cut).	Same (left entry 5, 1,800 feet from drift mouth, 41-inch cut).	Same (composite of Nos. 381-384)	No. 14 mine, Lower Kittanning (B or Miller) bed, 45-inch cut.	Same, one-half mile northoast of; Lower Kittanning (B or Miller) bed, 44-inch cut.	Patton, 1 mile north of: Brown bank, 300 feet from mouth, Lower Kittanning, 42-inch bed, 28-	Moshannon No. 33 mine, Upper Kitlanning or C' 44-100t bed (heading 18 off main heading 2, 50-	Same (heading 18 off main heading 2, 171-inch bench, 131-inch cut).	Same (heading 21 off main heading 1, 68-inch bed 43-inch cut).	Same (left heading 6 off level 2, 52-foot bed 46-inch cut).	Portage, 1 mile southeast of; Miller No. 1 shaft, Lower Mittanning or B bed (room 1, right entry 1,	Same (left air course 1, off right entry 2, 3,000 feet from shaft bottom, 40\frac{1}{2}-inch cut).	Same (straight main entry, 4,500 feet from shaft bottom, 401-inch eut).	Same (east heading 4 3,000 feet from shaft bottom, 401-inch cut).	Same (right entry 1 off left heading 1, 2,500 feet from shaft bottom, 32g-inch cut).

Table of chemical analyses-Continued.

	ω	Sample.			Proximate.	mate.			n	Ultimate.				Calorifi	Calorific value.	Reference.	nce.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Volatile mat-	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro-	Oxy-	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this buile-tin.
PENNSYLVANIA—Continued.																	
Portage, Miller No. 1 shaft—Continued. Same (composite of Nos. 10293, 10294, 10295, 10296, 10297).	10300	V	-67	3, 52	17.32	73.27	5.89	1.06	4.4.	82.06	1.23	1.92	23	8,222	14,278		712
2½ miles southeast of; Puritan No. 1 mine, Lower Kittanning on R had (din lovel 1, 13 600 fort	10288	V	2-3	3.68	15.95	25. 89 75. 80 75. 80	7.36	25.17		90, 59	L. 35	2.04	3.2	8,748	13, 701 13, 946 14, 479		712
from shaft bottom, 22,-inch cut). Same (upper inside level, 13,300 feet from shaft bottom, 36-inch cut).	10289	¥	100-010	3, 43	17. 31	82.07 71.62 74.17	7.64	1.2.5					2.9	8,709	15, 676 13, 930 14, 425		712
Same (right entry 1 off new slope, 1,500 feet from shaft bottom, 454-inch cut).	10290	V	21010	3, 17	16.7 17.25	55.52 25.52 25.53	6.93	1.87					2.9	8,117	14,148		712
Same (left entry 1 off new slope, 1,400 feet from shaft bottom, 431-inch cut).	10291	V	2 63 0	3, 38	16.59	72.74	7.85	1.98					2.9	8,73,73	12,42		712
Same (composite of 10288-10291)	10299	٧	2-010	3, 49	18.16	71. 79	7. 45			79.66	1.24	25.04	3.0	8,7782	14,008 14,515		712
St. Benedict, Victor No. 6 mine, Lower Freeport bed (main heading, 5,850 feet from mouth, 46-inch	7954	В	20 → C1 C	2.80	22.22	68.038	8.95	25.52	. 4. 4. 7. 69. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	80.04 80.04	11.28	25.28	1.9	7,646	14,763		713
Same (left heading 7, 33-foot bed, 38-knch cut)	7956	g	2-010	2.60	22.23	69.8	7. 47	8228		00.40	7.70	3	1.8	7,774	13,993	:	713
Victor No. 10 mine, Lower Kittanning bed (right heading 2, 45-inch bed, 27-inch cut).	7960	æ	o 030	2.94	19.52	73.87	6.67	1222	20.04	79.78	1.30	2.97	2.1	8,095	14, 143 14, 571	:	714
Same (near tail of heading toward No. 9 mine, 4-foot bed, 31-inch cut).	9962	В	2-010	3.22	19.31	73.45	6.39	- xx cr			OF -T	07:0	2.5	8,167	14,227		714
St. Bonface, Pardee No. 27 mine, Lower Freeport bed (main heading, 51-inch bed, 50-inch cut).	7964	=	2-0100	2.19	23.84 24.37 26.72	65.36 66.83 73.28	8.8 8.8	2.88.29	4.80 5.11	78. 47 80. 23 87. 97	1.29 1.32 1.45	3.11	1.5	7,709 8,882 8,643	13,876 14,188 15,557		714

714	715	715	715	716	716	716	716	912	716	716	717	717	717	717	717	718
	147	275	316	316	447	447	447	147	447	447	147	447	117	447	447	316
13,880	15,514 14,387 14,551	15,784	15, 730						14, 630	14,500	15,740	14,670	15,850		14, 190	15, 760
7,711	8,084 8,084	8,769 8,083 171	8, 739						8, 125	8, 055 9, 055 9, 055	8,745	8,345	8,805		7,880	8,760
1.5			1.6	2.5	2.3	1.5	1.7	1.5	1.5	1.8	- 00	1.7	ci	5:	ei ei	61
										97.78					4. c. 8. 5. 5. 5.	
										16.	66				96	1.07
										82.96	90.10				83.24	
										4.50	4.60				4.4	
1.82	3488	500	94.41	25:25:25:25:25:25:25:25:25:25:25:25:25:2	11.5	1.45	1.40	288	8118	1.31	1111	1.05	5225	52.53		11111111111111111111111111111111111111
8.26 S.45	7.72	6.42	5.43	7.22	6.0	5.2	5.6	4.0	5.2	5.54	7.5	.02.0	12.00	6.8	7.47	9.48
68.87	84.55 8.65 9.05	75.79	78.16	73.47	777.2	25.0	777.1	277.0	777.7	777.1	78.6	82.0 81.2 1.2		0.65.0 0.40	0.05.85 0.08.80	82.72.64 74.74 82.81
-							-									14.5 15.07 15.51 17.19
2. 29	1.13	1.08	2.21	3.04	3.0	23.1	2.3	2.1	2.1	2.4	T- :	2.3	4.6	3.3	2.6	2.81
	% H 61 €	o ¢1 ¢	o ⊷ 03 o	2-010	0 01	2010			2-010	2	m − 01	200	2-016	n=01	n → 01	n → 01 m
2	4	Y	В	В	V	<	4	*	4		V	4	V	V		щ
1961	7624	7625	3786	3784	90.11	3045	9043	9014	9045	9071	9037	9038	9039	9040	9070	3785
Same (600 feet from pit mouth and 8 yards from main heading, 43-inch bed, 34-foot cut).	South Fork, Priscilla No. 1 mine, B or Millor bed 2,300 feet north, main heading, 52-inch cut.	Same (1,300 feet north room 8, off heading 7, 43½-inch cut).	Stineman No. 1 mine, Lower Kittanning (B or Miller) bed, 34-foot cut.	Stineman No. 5 mine, Upper Freeport (E) bed, 353-inch bed.	Stineman No. 2 mine; Lower Kittanning (B) bed (west ontry 13, off main entry, 16,200 feet S.	40 W. from drift mouth, 40-free cett). Same (west entry 12, off main entry, 11,006 feet S. 50° W. from drift mouth, 43f-inch cut)	Same (west entry 11, off main entry, 11,500 feet S. 15° W. from drift mouth, 45½-inch cut).	Same (new west entry 10, off main entry, 11,400 feet S. 80° W. from drift mouth, 454-inch cut).	Same (pillar, room 16, west entry 9, off main entry) and off to the control of th	Samo (composite of Nos. 9041-9044)	Stineman No. 4 mine; Lower Kittanning (B) bed (rightentry 8 off new dipentry, 37-inch cut.).	Same (pillar 9 on right entry 18 off main entry, 364-inch cut).	Same (room 3, right slant off right entry 16 off main entry, 33-inch cut).	Same (right entry 16 off main entry, 2½-foot eut).	Same (composite of Nos. 9037, 9039, and 9040)	Stineman No. 6 mine, upper Kittanning (C') bed, 424-inch cut.

Table of chemical analyses—Continued.

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	Sa	Sample.			Proximate.	nate.			D	Ultimate				Calorifi	Calorific value.	Reference.	nee.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy- gen.	Alr-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
PENNSYLVANIA—Continued.																	
South Fork—Continued. Wickes mine, Brookville (A) bed, 3½-foot cut	3788	Ħ	-62	2.35	14.3	71.4	11.95	38	4. 23	75.16	1.13	422	1.8	7,382	13,288	447	718
1 mile northwest of post office; Argyle No. 3 mine, Lower Kittanning (B) bed, 41-inch cut.	3787	В	. <del>− α</del> .	2.24	16.08 16.06	83.37 78.37 80.17	3.69	27.7.00	4.02	07.78	1.32	i	1.6	8,014	19, 200	316	718
r Freeport feet from	10275	4	2-010		24.25.03 26.27 26.99	65.63.64	9.75	25052					2.3	7,534		447	719
Same (Gregg, heading, 3,500 feet from drift mouth, 324-inch cut). Same (Bach heading, 4,500 feet from drift mouth 324-inch heading, 4,500 feet from drift	10276	<b>4</b> 4	-000-0	2. 4	23.86 24.55 25.55 25.06	66.07 64.73 66.06	7.67 7.86 8.7 8.88	85575					1.5	7,842 8,035 8,720 7,754 7,915	14, 110 14, 463 15, 696 13, 957 14, 247		719
Same (composite of Nos. 10275-10277)	10281	¥	100-01	2.73	27.5 24.98 25.68	72.5 63.64 65.43	8. 89 89	83.83	4. 72	78.24 80.44	1.25	6.19	1.8	8, 687 7, 700 7, 916			719
Peerless No. 2 mine, Lower Freeport or D bed (left heading 7, 3,500 feet from drift mouth, 324-	10272	4	α		24.28.69 24.27.69	71. 82 62. 71 54. 25	11.21	2.2.50 2.50	5.18	88.29	1.37	4.25	1.7	7, 444 7, 626 8, 615			720
nnen cut). Same (main heading, 4,000 feet from drift mouth, 374-inch cut).	10273	₹.	2-1010	2.21	25.26	62.68	10.41	25.25		2 1 2 1 0 0 2 0 0 1 0 0 1 0 0 1 0 0	· · · · · · · · · · · · · · · · · · ·		1.6	7,563			720
Same (pillar on new haulage heading, 3,400 feet from drift mouth, 353-inch cut).	10274	4	2-1030		23.12	20.02	8.7 9.01	1972		0 0 0 0			2.6	7,594 7,873 8,652			720
Same (composite of Nos. 10272 and 10273)	10280	4	) C1 C	2.31	24.98	63.94	10.82 11.08	25.65	4.59	76. 11 77. 91 87. 93	1.38	4.6. 3.88	1.7	7,482			720
Vintondale, Vinton No. 1 mine, Lower Kittanning or B bcd, 43-inch cut.	3832	m	n − 01 m	3.12	20.16 20.16	70.85	8.14 8.4	19.95 24.89 24.89 24.89	01.0	70.70	20-1		2. 5			316	721

			23.41	IDI		01	COLL				0 1 1 1 1		~			10
721	721	721	721	721	721		722	722	722	722	723	123	121	724	724	724
	:		:				:	:	:		316	316	316	447	447	17
14,644	14,339	14,347	14,176	14, 138 14, 416	15,733	14,380	15,790 14,027 14,501	15,750 13,990 14,659	15,748 14,251 14,863	15, 797 14, 119 14, 650	15,718			14,200	12, 25 12, 25 12, 25 13, 25 14, 25 15 16, 25 16, 25	15, 760
	8,789 8,139			8, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25		7,989	8,772 7,793 8,056	8,75°,8 177°,0 144°,148°		8,776 7,844 8,139	8, 732			7,890 8,080	8,780	8,755
						2.4	2.7	4.0	5.0 44	3.1	1.9	2.0	2.0	1.9	2.9	2.6
					8503	2.30				1.50						
					1.32	1. 43				1.28						
					81.81	88.17				80.59						
					4.73					4. 90	5.01					
1.30	- 04 04 0	888	25.03	46.65 24.88	2883	3775	1919 842 7	2=2	1.44	1.59	282	2.53	28.88	1.95	388	8888
5.31	6.98	6.59	7.22	8.21	7.15	6.01	7.67	6.6	5.05 92.08	6.54	6.98	6.62	6.1	× × × × × × × × × × × × × × × × × × ×	5.8	6.0
70.06	72.28	69.84	127.7.8 188.8 188.8	2.7.2.8 2.8.4.8 3.8.4.8		. 2.2.5 . 2.2.5 . 3.3.5 . 3.5 . 3.	5.1.2 5.8.3 5.83	79.74	79.76	79.39	75. 26 77. 75. 75 19. 94	5.55 5.88 8.88	8:1:8:8 8:0:00	75.0	2.82.23	875.0 85.0 85.0
22. 43	20.23	12.22 27.23 30.73 30.73	17, 58	19.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05	20.03	10.01	18.03 18.04 18.04 18.04	20.56 17.98 18.84	20.24 19.59	20. 18. 19. 19. 33. 33.	15.08	17.3	15.0	14.5	3225	13.0
2. 32	1.78	2.64	3.04	1.93	. 91	3.11	3.26	4.57	4.12	3. 63	2.81	2.8	2.6	2.4		e0 :00
C1 C	0-010	o ← c3 c	0-030	o 01 0	ro c≥ c	n → 01:	m n₁	ಣ⊣ಣ	ಣ್ಣಣ	co ca	m 01 €	o c₃	n → 01 m	-010	n-01	n → 01 m
4	4	4	V	4	4	4	4	<	<	V	<u>=</u>	m	4	4	۲.	~
322	320	321	318	319	10459	10257	10254	10256	10255	10271	3839	3831	8976	8976	8977	8078
(Heading 10, off left entry 2, 6,000 feet from drift mouth, 403-inch cut).	Same (left heading 1, off dip entry 2, 4,000 feet from drift mouth, 404-inch cut).	Same (heading 10, off right entry 4, 7,000 feet from drift mouth, 501-inch cut).	Same (slope 4, 2,500 feet from drift mouth, 42}-inch cut).	Same (left heading 4, off dip entry 4, 3,500 feet from drift mouth, 41-inch cut).	Same (composite of Nos. 318-322)	Vinton No. 6 mine, Lower Kittanning or B bed (room 15, oil left entry 5, 43‡-inch cut).	Same (right entry 6, 40%-inch cut)	Same (main heading, 42-inch cut)	Same (right entry 5, 44-inch cut)	Same (composite of Nos. 10254-10257)	Walsall (north of), Ingleside mine, Lower Kittanning (B) bed, bed about 7 feet 4 inches.	Weber, near station, Commercial No. 4 mine on South Branch, Blacklick Creek, Lower Kittanning	Windber (Somerset Country). 2 miles northwest of; Eureka No 37 mine, Lower Kittanning (13) bed (main air course, 8,300 feet from drift mouth,	Same (pillar, right entry 18 off main entry, 7,400 feet from drift mouth, 399-inch cut).	Same (pillar, left entry 16 off main entry, 6,300 feet from drift mouth, 431-inch eut).	Same (north entry, 9,500 feet from drift month, 38-inch cut).

Table of chemical analyses-Continued.

1	43.41	ALISE	J (7.					0 212						
ence.	Page of this bulle-tin.	i	162	724	127	257	725	725	725	725	725	725	725	. 725
Reference.	Bul- letin No.		14	447	111	316	417	447	177	177	447	77.7	744	447
Calorific value.	British thermal units.				14,820 14,820									14, 170 14, 590 15, 780
Calorific	Calo- ries.				8, 235									7,870 8,110 8,765
	Air- dry- ing loss.			ci 13	Ci	1.6	2.5	1.9	2.4	2.1	23	2.6	1.7	62
	Оху-				22.25									3.25 3.25
	Nitro-				1.37									1.32
Ultimate.	Car-				84.85 84.39									82.62 89.34
D	Hy- dro- gen.				42.45	H								4.42
	Sul- phur.		11.	11.05	1.07	1.13		3.00	988	5.53	3888	1.40	55.55	1.37
	Ash.		7.7	5.7	6.33	7.01	7.5	တွင် တွင် တွင် တွင်	30.8	7.1	6.2	7.4	6.8	7.3
Proximate.	Fixed carbon.		2 3 3 T	78.6 81.1 86.0	81.0	28.69	76.5 79.3 85.5	74.8	24.7.5	79.2	26.9	76.3	28.50	777.3
Proxi	Vola- tile mat- ter.		14.0 14.0 14.0	1355	1222	14.32	13.0 13.0 14.5	14.5	14.00	36.65	14.0	13.00	15.0	13.0
	Mois- ture.		62	3.2	3,3	2.31	3.0	2.6	3.1	2.8	2.9	3.3	2.3	2.9
	Con- di- tion.		-010	o → 63 c		0-1010	0 - 01 00	C3 C	0-1010	0-010	0-010	9-1010	n → 01 0	2400
Sample.	Kind.		V	V		B	V	<	4	4	<	4	4	
ŭ	Lab- ora- tory No.		8979	8980	9028	3835	8919	8917	8915	8914	8916	8913	8918	9031
	Locality, bed, etc.	PENNSYLVANIA—Continued. cambria couvry—continued. Windber, Eureka No. 37 mine—Continued.	Same (left entry 2 off northwest drift, 4,500 feet from drift mouth, 53\frac{2}{3}-inch cut).	Same (main north entry 2, 9,000 feet from drift mouth, 401-inch cut).	Same (composite of 8975, 8978, 8979, 8980)	Same (3½-foot cut)	Eureka No. 40 mine; Lower Kittanning (B) bed (pillar 6, right entry 1, off right entry 3, off main entry, 1,600 feet N. 45° E, from drift	mouth, 38-inch cut). Same (pillar 20, right entry 6, off main entry, 3,000 feet N. 25° E. of drift mouth, 46-inch	Same (left entry 6, off right entry 6, off main entry, 4,500 feet N. 45° E. from drift mouth,	Same (left cut). Same (left cuty 3, off right entry 7, off main ontry, 4,990 feet N. 25° E. from drift mouth,	Same (main air course, 6,100 feet N. 15° E. from drift mouth, 46½-inch cut).	Same (left entry 12, off main entry, 4,600 feet north of drift mouth, 46-inch cut).	Same (pillar 20, left entry 9, off main entry, 3,500 feet N. 8° W. from drift mouth, 32-foot	Same (composite of Nos. 8913-8916)

725	725	725	725	725	727	727	727	727	727	262	727	727	728	729	729
755	447	417	14	447	447	447	447	447	447	447	447	447	447	:	
14, 130	15,800			14,000	14,501	15,743 14,587 15,068	15,752	19,723				14,520	15,780 14,080 14,520 15,810	14, 274 14, 576 15, 628	13, 760 14, 030 15, 590
8,075	8,780			7,810 8,080	8,058	8, 746 8, 371	8,751 8,072 8,320	2, 755				8,315	8,765 8,7820 8,785 785	7,930 8,098 8,682	7, 645
2.0	2.7	2.3	2.3	2.4	3.0	2.4	2.3	2.8	2.4	2.4	2.6	2.6	ci	1.5	1.3
4.91				5.05	96.5							5.27 2.38	88.28 88.28	4.2.8. 8.2.8.	4:16 4:10
1.25	1.40			1.37	T. 0.1							1.10	1.36	1.32	1.14
80,29	89.79			79. 69 82. 42									90.68 79.81 89.61	80.58 82.29 88.23	78.05 79.58 88.45
4.38	4.55			£.4.	4.40							4.56	4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4	4.92 4.79 5.14	4.66
1.38	2.54	888	8888	25.63	2.5	¥8.8		13.8	8.8.8	888	328	1.02	1.07 1.13 1.16 1.26	1.99 2.03 2.18	1.95 1.99 2.21
8.01	7-7-	7.5	7.6	7.58	4.28	4.35	4.61	0 <del>4</del>	4.9	3.27	5.3	4.82	7.93	6.59	9.8
75.4	84.5 76.4 79.0	75.9	77.4	76.7	76.93	80.21	77.06 79.43	78.6 78.6 81.6	85.5 79.0 82.0	88.888 8.8.6.0 8.8.6.0	8.7% 5.4.2 4.2.4.2	85.0 82.2 82.2	86.0 76.1 85.5	69.87 71.36 76.51	66.3 67.5 75.0
14.0	15.5 13.0 13.5	13.5	12:0	12:55	15.2	16.50 14.95 15.44	15.35	13.5	13.0	14.0 12.5 13.0	12.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5	12.5	13.0	21.46 21.91 23.49	22.0 25.0 25.0
2.8	3.3	3.1	3.0	3.3	3.75	3.19	2.98	3.7	3.1	3.2	3.5	3.4	3.0	2.08	1.9
- 5	m – m	m → 01:	m - 01	n → 01	2-01:	20 – C3	m → e3 e	2-0	m → 01	ಣೆಗಳು	n-01	n — 01	m → 01 m	-016	-01c
	<	V	<b>V</b>		¥	V	4	V	٧	V	٧		4	B	<b>m</b>
9032	8981	8982	8983	9020	6271	6272	6273	8999	0000	1006	9002	9051	9003	8481	8487
Same (composite of Nos. 8917-8919)	Eureka No. 37-C' mino, Upper Kittanning (C') bed (main entry, 3,900 feet from drift mouth, 534-	inch cut). Same (rightenfry 7, 3,500 feet from drift mouth, 47-inch cut).	Same (entry 4 off right entry 4, 3,260 feet from drift mouth, 48½-inch cut).	Same (composite of Nos. 8981-8983)	44 miles east of; Eureka No. 42 mine, Lower Kit- tanning (13 or Miller) bed (main heading C,	700 feet north, 40-inch cut), Same (room 9 off right entry 1, main heading, 1,000 feet north, 39-inch cut).	Same (left entry 1 off main heading, 600 feet west, 42-inch cut).	Same (main entry, 24-foot cut)	Same (right entry 2 of main, 334-inch cut)	Same (right entry 1 off main, near left 6, 42½-inch cut).	Same (right entry 3 off left 1 off main, 41-inch cut).	Same (composite of Nos. 8999-9002)	Eureka No. 42-C' mine, Upper Kittanning (C') bed (right entry 2 off main entry, 1,000 feet N. 55° E. of drift mouth, 513-inch cut).	Occoola Mills, 2 mile east of: No. 10 mine, 8,000 feet in (room 20, main dip heading, Lower Kittanning B (51-inch) bed, 43-inch cut).	CLARION COUNTY.  Blue Ball station, Goss mine, 500 feet in, room off main heading, Brookville or A bed, 53-inch bed.

Table of chemical analyses—Continued.

ence	Page of this bulletin.		729	729	730	731	731	732	732	732	733	733	733	734
Reference	Bul- letin No.		316	316	316	316 454	316	316	316	316	316 454	316	316 454	
Calorific value.	British thermal units.									13,118	601,61			14, 390 14, 670 15, 660
Calorifi	Calo-									7,288	0, 441			7,990 8,150 8,700
	Air- dry- ing loss.		3.2	1.3	3.3	2.1	1.8	3.9	2.6	1.1	1.7	2.3	1.0	1.1
	Oxy-gen.													3. 44 3. 72
	Nitro- gen.													1.33 1.36 1.45
Ultimate.	Car- bon.													80.95 82.54 88.14
Ω	Hy- dro- gen.													4.99
	Sul- phur.		3.98	3.06	1.10	1.02	2.73 2.73	1.000	2.2.2.2.2.2.4.9.2.4.9	36.4.4.	4.01.01 3.88 8.88 8.88	5555	48645	1.37
	Ash.		7.02	10.3	6.58	8.65	6.29	14.99	5.8	11.17	8.65	7.82	8.31	6.2
nate.	Fixed car-		52.83	52.20	60.02 57.14 60.5	55.03 57.37 59.82	58.77	62.72 48.66 51.70	61.50 55.32 57.68	61.39 49.01 50.19	52.05	56.76	54.31 55.91 61 14	68.9
Proximate.	Vola- tile mat- ter.		37.86	42.96 34.77 35.75	32.23	34.97 30.24 31.53	34.52 33.79 34.94	37.28 30.46 32.37	38.50 34.79 36.27	38. 61 37. 47 38. 37	35.94 37.19	33.7	35. 51 35. 53 38. 86	23.0
	Mois- ture.		4.84	2.73	5.56	4.09	3.30	5.89	4.09	2.35	3.36	3.98	2.87	1.9
	Con- di- tion.		-0	0-0	∞ <del></del> α1	20-01	10 H C3	m-01	m-01	∞ <del></del> οι ο	n-01	2000	n = 01 m	- c1 cc
Sample.	Kind.		В	В	щ	Д	Д	Д	Д	щ	В	В	В	щ
ž	Lab- ora- tory No.		4173	4170	4171	4177	4172	4176	4055	3953	3951	4111	4116	8483
	Locality, bed, etc.	PENNSYLVANIA—Continued.	Clarion, 14 miles northwest of; near Clarion Junction, Cook prospect, 100 feet in, Clarion bed, 100 feet	from mouth, 35-inch cut.  Fairmount City, 14 miles northeast of 1 mile north of Oak Ridge, No. 1 mine 200 feet In, Lower	Kittanning (403-inch) bed, 391-inch cut. 2 miles northeast of, Fairmount No. 11 mine, 100 feet in, Upper Freeport bed, 493-inch cut.	New Bethlehem, 1 mile northwest of; Shenkle country bank, Upper Kittanning (484-inch) bed.	northeas	Freeport bed. Rimersburg, 34 miles northeast of, 4 miles southeast of Sligo, Mohney country bank, Upper Kittan-	ning (24-foot) bed, 264-inch cut. Rimersburg, 1 mile south off. Acme mine, 800 feet in, Lower Kittanning bed, 48-inch cut.	Sligo, a mile west of; Sligo mine, 200 feet in, Brookville (35-inch) bed, 34-inch cut.	0.8 mile north of; Shorb pit, 350 feet in, Lower Kittanning bed.	23 miles southeast of: Saylor country bank, Upper Freeport (46-inch) bed, 39-inch cut.	Strattonville, 2 miles southeast of; Baldauf No. 1 mine, Lower Kittanning (38½-inch) bed, 3-foot cut.	CLEARFIELD COUNTY. Gassam, Gassam No. 1 mine, 8,000 feet in, off left entry 9, Lower Freeport or D bed, 3-foot cut.

734	735	735	735	735	735	736	736	737	737	737	737	737	737	738	738
:						:								:	
13,610	13,350	14,000	15, 600 14, 089 15, 602	13,909	15, 662 14, 330 14, 680	14, 510	15,690 13,806 14,198	13, 918 14, 474 15, 660	14,038	13,946	14, 218	14, 452	14, 080	15,677 14,060 14,530	15,570 13,940 14,390 15,600
7,765	7,7,8 7,414 905 905	%,7% 110 110 110	8,652	7,727	8,7,8,0 1,960 1,155	8,80 30 30 30 30 30 30 30 30 30 30 30 30 30	7, 671 7, 888 7, 888	8,041 8,700 8,041	8,020	8,748	8,73,899 8,081	6,7,8,0 10,019	8,047	8,709 7,815 8,070	8,650 7,745 7,995 8,665
1.9	5.5	3.2	2.1	2.1	1.6	2.1	1.9	6. 4.	65 :	2.9	1.7	2.5	2.1	63	2.6
	1.82				22.87	3.9.5	182	7.0*		5.07	2. 33	0 0 0			4.4.0.0. 0.0.0.0. 0.0.0.0.0.0.0.0.0.0.0.
	1111				1.42	1.41	1.00	a i i i		1.27					1.247
	80.25						79.75			78.90	93.99				88. 44 77. 68 80. 20 86. 94
	50.03 20.03 20.03						5.05 4.45 70 70 70			4.4.			5.00	444 888	4.98 4.88 5.07
	36.00			1.39	2922	25.23	.444	8228 66666	22.24	3848	3223	25.33	1.67		3.77.
10.2	9.0	6.1	9.38 9.7 2.82	7.86	6.3	4.6	8.93 9.18	7.29	7.73	7.53	7.39	7.5	7.39	6.5	7.5
68.5	65.8 70.5 70.5	69.00 0.00 0.00 0.00	62.74 64.86 71.83	65.1	72.05	5;5;5; 0 0 0 1	67.57	72.05 77.93 77.93	71.79	12.62	11.87	17.08	71.61	77.50 69.3 71.3	76.5 65.8 67.7 73.5
			8.4.8. 2.4.6. 2.4.1.					25.65 25.65 25.65 25.65							23.5 24.5 26.5 5
2.7	6.2	4.1	3.27	3.34	2.4	2.9	2.76	3.84	2.76	3.37	2.26	3.12	2.80	3.2	3.2
	2-010	0-01	2-010	-01	2 - C1 C1	2 03 0	n → 01 0	2-0100	H010	2 - C1 C	21010	o ⊶ 03 0	2 01	20 61	m → c1 cn
<b>m</b>	A	m	4	Y	A	B	B	4	4	<	<	<	4	Э	m
8484	8485	8482	5227	5233	8490	8488	8480	10258	10259	10264	10260	10261	10265	8489	8486
Graham, Amile northwest of, Middle Kittanning or C bed (Guion mine, 6,000 feet in, end of straight banding A. Osirah bod)	Same (Harkley mine, 2,700 feet in, room at end of main heading, beyond entry 7, 13 (3-foot) best out 2 feet of the control of	Grampian, 4 mile west of Grampian No. 3 mine, 500 feet in, off main heading, Lower Freeport or	La Jose, 13 miles west of, 43 miles northwest of Burnside Clearfield No. 1 mine, Upper Preport bed (Reading 55, 1,700 feet southwest of opening,	Same (room 5 off heading 7, 1,700 feet west of opening, 273-inch cut).	Madera, Sylvania No. 1, 5,000 feet in, right entry 1, 5-foot 11-inch cut, Brookville or A bed.		A mile southeast of: Union No. 3 mine, 1,000 feet from mouth, left entry 2, off main (A 674-	Phillipsburg (Center County), 34 miles southwest of Aeme No. 2 mine, Lower Kittanning or B bed (left heading 3 off Hawk Run entry, 4 mile	Southwest of efficience, Some Charles Court of Hawk Run entry, about three-eighths mile southwest of	Same (composite of Nos. 10268 and 10259)	Same (pillar in room 1, Packer heading, about I mile northeast of entrance, 37-inch cut).	Same (pillar in room 1 off left entry 3 off Lucky 24 entry, about 3 mile northeast of entrance,	Same (composite of Nos. 10260 and 10261)	Smoke run, 4 mile west of; Eureka No. 22 mine, 2,600 feet in, west entry I off main heading, D	"Jower Spil", 33-Inch bed, 32-Inch cut. Woodland, 4 mile southwest of: Plane mine, right entry I off right heading 1, Upper Kitlanning or C' (7-loot 7-inch) bed, 3-foot cut.

Table of chemical analyses—Continued.

	Sa	Sample.			Proximate.	nate.			D	Ultimate.			A ir.	Calorific	Calorific value.	Reference.	nce.
Locality, bed, etc.	Labor- atory No.	Kind. ti	Con- di- tion.	Mois- ture.	Volatille matter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-gen.	dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
PENNSYLVANIA—Continued.															П		
Connellsville, 2 miles southwest of Leisenring No. 1 mine, Pittsburgh bed (6,500 feet northwest of	1111	٧	-010	2.40	30.64	60.48	7.22	0.97					1.4			3377	738
opening, 89-inch cut). Sanne (9,000 feet northwest of opening, 913-inch	4412	V	2-0	2.85	29.97 20.97 30.84	59.84	7.37	11.22					1.8	7,773	13,991	332	738
Same (run of mine)	4609	Ö		5.13	33.37 27.87 29.38	66.63 61.44 61.44	8.71	1.36 .86 .91	4.91	73.13	1.58	10.89	4. 2	8,655 7,425 7,827	15,579 13,365 14,089	332	:
Same (butt parallel entry 2, right entry 6, 7,500 feet north of opening, 98½-inch cut).	5236	V	o → 010	3.24	22.35 27.13 28.04	62.58	7.11	00000	.6.2.4. 10.2.2.9.	86.87 80.61 80.61	1.23	84.44	1.8	8,617 7,733 7,992	15,511 13,919 14,386		738
Same (24 miles south of opening, butt entry 6 off rib 7, 83-inch cut).	7594	4	. — c₃ ·	5.66	18.88.88 18.88.88 18.88.88 18.88.88 18.88.88 18.88.88 18.88.88 18.	1889 1482 1482	8.25	31.55		87.00	1. 3/	0.18	1.6	7,570	13,927		738
East Millsboro, Hustead mine, Pittsburgh bed (buttentry 5, 900 feet from bottom of slope, 63-foot	1968	V		4.08	33.33	55.28	9.50	321.5					2.9	7, 371	13,268	336	740
cut). Same (butt entry 1, 1,300 feet north of bottom of slope, 813-inch cut).	1970	4	n – 01 0	2.81	33.88	54.68	88.88	3888			0 1 5 0 1 1 0 1 1 0 1 1		1.5	8, 529	15, 350	18 29 2	740
Same (run of mine, sample 1)	2161	0	2-01	3.24	32. 26 32. 84 32. 84	52. 46 54. 22	12.52	2.1.2	4.80	71. 41	1.24	5.00 5.00 5.00	2.0	7, 155	12,879	290	:
Same (run of mine, sample 2)	2176	Ö	ლ— ი	3.46	37.72 31.80 32.94	62.28 51.74 53.59	13.00	2.95	5.27	84.77	152		2.4	8, 494	15, 289	290	:
GREENE COUNTY.			es .	:	38.07	61.93	:	2.33	:	:	1.43	:	:		:		
Durbin, Crabapple mine, Waynesburg (53-foot) bed, 3-foot cut.	1585	P		2.79	36.05	48.35	12.81 13.18	3, 47					1.2			84	741
Ryerson station, country bank, Washington (51½-inch) bed, 33-inch (lower bench) cut.	1239	a	2-16360	9. 32	43.83.45 45.83 45.83 45.83	46.96 48.02 56.07	14.03	4.8.8.4								300	741
Jacobs, Barnett mine, Barnett, Lower Kittanning or B bed, level heading, about 600 feet from entrance, 38}-inch cut.	10319	≺	-0.00	2.09	18.20 18.59 19.86	73.46 75.03 80.14	6.25	18.88					1.6	8,008 8,179 8,736	14, 414 14, 722 15, 725		742

							0011	L 11	* -4.	112 01	1111	D 10	10811	۵۷۰		100
742	742	143	742	743		744	744	744	744	745	745	745	246	746	746	746
	:		:			:		:		:			:	:		
14,117 14,369 15,694	13,973	14,090	15,689 14,076 14,311	15,683 13,795 14,222 15,516		14, 170	15, 649 14, 359 14, 697	15,644 14,200 14,735	15,617	15,615 14,054 14,558 15,572	14,256	15,656 14,152 14,645	15,741 13,874 14,265	15,725 13,876 14,283	15,626 13,639 14,058	15,530 13,599 13,928 15,511
7,843 7,983 8,719	7,763	7,828	8,716 7,820 7,951	8,713 7,664 7,901 8,620		7,872	8,694 7,977 8,165	8, 691 8, 186 8, 186	2,880	8,675 8,088 8,088 8,651	7,920	8,698 7,862 8,136	8,745 7,708 7,925	8,736 7,709 7,935	8,681 7,577 7,810	8,628 7,555 7,738 8,617
1.3	1.5	1.2	1.3	1.9		1.3	1.6	2.7	3.0	2.3	1.7	2.4	1.6	1.2	2.2	1.6
			3.24	1.99		4. 76		7.16	4.34							
			1.35	1.50		1. 19	1.31	1.31								
			80.64			79.39		79.80								
			4.61			5, 08		4.98	5.03							
1.78	1.54	2823	1.52	1.73		2, 19	1.53	1.35	. 555	1.03	888	388	1.63	1.85 2.10 2.16	888	3.36
	8.60	8.59	8.61	8.09		7.39	5.91	5. 45	5. 19		5.67	6.96		8.85	9. 20	
				80.53 80.73						74.27 67.17 69.57 74.42						68.83 60.11 61.56 68.55
				19. 47 17. 13 17. 66 19. 27						25.25.25 25.25.25 25.25.25 25.25.25 25 25.25 25 25 25 25 25 25 25 25 25 25 25 25 2						31.17 27.57 28.24 31.45
1.74	1.96	1.60	1.65	3.00		2.06	2.31	3.62	3.98	3.46	3.28	3.37	2.74	2.85	2. 98	2.36
-000	-010	) C1 C	2-01	m + 01 m		-63	ro → co	10000	240	300-030	-010	2-0	∞ – α	ಐಀೕೲ	m <b>−</b> €	m = 01 m
	٧	4	¥	4		щ	A	В	В	. <	4	4	4	¥	V	4
10315	10316	10317	10333	10318		6962	7971	7972	7973	5224	5228	5222	5225	5229	10306	10307
Jacobs mine, Fulton bed (last room off dip air course, about 1,000 feet from entrance, 60-inch cut).	Same (level heading, about 3,300 feet from entrance, 46-inch cut).	Same (room 31 off level heading, 2,800 feet from entrance, 45½-inch cut).	Same (composite of Nos. 10315-10317)	3½ miles south of, Starr mine, Fulton bed, west rib near face of right heading, about 130 feet from entrance, 55½-inch cut.	INDIANA COUNTY.	Clymer, 1 mile from, Rodkey mine (1,400 feet from pitmouth, 38,-inch bed, 36,-inch cut). Lower	Kittanning bed. Same (main entry, 39½-inch bed, 37½-inch cut).	Penn-Mary No. 1 mine, Upper Freeport bed (right heading 3, off town drift, 483-inch bed, 38-	Same (right heading 1, 61-inch bed, 39-inch cut).	Glen Campbell, Banks Township, Glenwood No. 9 mine, Upper Kittanning (C') bed (right cross hading 1, 2,600 feet northwest of opening,	Same from 37 of right entry 2, 2,900 feet northwest of opening, 384-inch cut).			leet west of opening, 464-inch cut). Same (back heading off straight heading, 464-inch cut).	Homer City, 1 mile east of; Lucerne No. 1 mine, Upper Freeport or E bed (right entry 3, 3,000 feet	east of drift mouth, 62-inch cut). Same (right entry 7, 2,500 feet northeast of drift mouth, 68-inch cut).

Table of chemical analyses—Continued.

e.	Page of this bulletin.		746	746	746	746	246	246	747	272	747	747	748
Calorific value. Reference.	Bul- Betin th No. bu				:	:	:	:		:		:	
le. R				:	: : : : : : : : : : : : : : : : : : : :	# 9 g	: :	: :	-:- -:	74 94 03	: : : : : : : : : : : : : : : : : : : :	559	52752 48 52752 48
le val	British thermal units.		13,0	100 4 7 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	28,42								15,552 13,424 14,022 15,448
Calorif	Calo- ries.		7,749	7,685 7,935 8,935	8,101 8,101 8,030	7,658	8,002	7,650	8,7,7,8 8,900 8,900 8,900 8,900			7,533	8, 640 7, 458 8, 582
	Air-dry-ing loss.		2.2	2.5	4.5	2.5	3.4	2.7	2.2	5.6	4.7	4.2	2.9
	Oxy-							6.15 3.31	3. 61			7.39	3.37
	Nitro-				4 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1.37	1.55			1.41	1.61
Ultimate.	Car- bon.				* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*	77.06	87.01			76.23	87. 44
n	Hy- dro- gen.					1 0 0 0 0 0 0 0 0 0 0 0		5.08	5.32			5.23	5.36
	Sul-		1.26	. 2.2.2. . 4.2.2.	4488	2525	1.89	3225	1.88	1.86	203	4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	2.22 1.86 1.94 2.14
	Ash.		7.68	7.72	6.23	8.29	7.36	8.12	8.19	8.33	7.62	7.80	9.84
nate.	Fixed carbon.		63. 59 65. 56	63.02	62.77	61.97	62.29	62.33	61.99 63.87	60.97	61.68	61.16 64.39	70, 15 60, 35 63, 04 69, 45
Proximate.	Vola- tilo mat- ter.		25.72	26.92	26.01	26.56	26.24	26.24 27.13	29.62 26.88 27.69	26.50	8888 8888 8888	26.02	29.85 26.55 27.73 30.55
	Mois- ture.		3.01	3.15	5.32	3.18	4.11	3.31	2.94	6,44	5.46	5.02	4.26
	Con-di-tion.		-22	2-07	2-02-	2-010	2-01	200	es → e3 e	2 - 0 0	2-01	n ⊢ 0	0 P P P P
Sample.	Kind.		4	v.	4	V	V	V	4	4	Α.	V	₹
Sa	Lab- ora- tory No.		10308	10309	10310	10311	10312	10313	10303	10305	10304	10314	5223
	Locality, bed, etc.	PENNSYLVANIA—Continued. INDIANA COUNTY—continued.	Homer City, Lucerne No. 1 mine—Continued. Same (right entry 11, 3,500 feet northeast of drift mouth, 68-inch cut).	Same (back heading, 3,500 feet northeast of drift mouth, 67-inch cut).	Same (left entry 5, 3,200 feet north of drift mouth, 59½-inch cut).	Same (left entry 3, 3,000 feet northwest of drift mouth, 63-inch cut).	Same (right heading 7 off left entry 1, 3,000 feet northwest of drift mouth, 55-inch eut).	Same (composite of Nos. 10306-10312)	Lucerne No. 3 mine, Upper Freeport or E bed (main north heading, 700 feet from shaft bot-	Some (west heading 1, off main south entry, 600 feet from the shaft bottom, 59-inch cut).	Same (left heading 4 off south entry 3, 800 feet from shaft bottom, 574-inch cut).	Same (composite of Nos. 10303-10305)	Rossiter, Canoe Township, Clearfield No. 3 mine, Upper Freeport bed (5,100 feet southwest of opening, 46j-inch cut).

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748 748 748	749	750	751
316 332 447 187 1832 332 332 332 332 332	332 332 332 332 332 332		261
13, 703 14, 096 15, 525 14, 096 14, 079 14, 488 18, 795 18, 295 18, 29	14,074 15,743 13,801 14,114 12,964 13,554 15,689	14,465 15,699 15,699 14,999 14,510 14,592 14,670 14,670 11,495 11,497 11,497 11,497	12, 047 12, 737 15, 287 15, 390 12, 577 12, 933 14, 8 73
76.13 7,831 8,625 7,821 8,049 7,064 7,064 7,018 8,803 7,018	7, 819 7, 667 7, 580 7, 530 8, 539 8, 539	\$\\ \pi_0\\ \p	6,693 8,493 8,550 6,987 7,185 8,263
H 01 00 01 01 01 01 01 01 01 01 01 01 01	, , , , , , , , , , , , , , , , , , ,	4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3.4
22.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.			6.96 2.27 2.27 2.25 2.25 2.25 2.25
11.14	1. 33 1. 39 1. 66 1. 66		
78.84 87.77 75.89			72.65 76.81 92.19 93.05 79.22 81.47
4,44,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4	4.2.5 5.4.4.77 5.5.4.4.77		3. 10 3. 20 3. 20 2. 23 1. 97
999444444668886469 9884488758119378889	4, 07 1, 39 1, 42 1, 53 1, 53 1, 53 1, 53 1, 58 1, 58	. 855 . 89	. 74 . 79 . 95 . 54 . 56
8.8.17 8.8.17 9.25 9.62 9.62 9.62 8.27 8.51 10.33	10. 60 7. 20 7. 36 8. 42 8. 61 11. 90 12. 44	4. 07 4. 22 5. 70 5. 70 5. 85 4. 32 4. 32 4. 32	15.78 16.68 12.69 13.05
63725252555 63725555555555 6372555555555 63725555555 637255555 637255 637255 63725 6	70. 83 61. 03 61. 03 65. 88 65. 37 65. 93 66. 85	65.18 67.59 70.57 70.57 66.45 68.33 71.54 65.61 66.69 66.63 71.60	71. 79 75. 90 91. 09 91. 09 84. 40 97. 07
28.28.28.29.29.29.29.29.29.29.29.29.29.29.29.29.	18. 57 30. 77 30. 91 31. 61 33. 15 33. 15	27.19 28.19 29.43 26.43 27.18 27.18 28.54 28.54 28.54 27.17 27.17	20.7.7.42 8.91 20.55 20.55
2 3 13 84 83 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2. 22 22 4. 35	3, 56 2, 75 3, 18	2.76
	N0-00-00-00-00-00-00-00-00-00-00-00-00-0		<b>⊣</b> 0004 <b>⊣</b> 000
4 4 4 4 0 0	4 4 D	4 4 4 4	D 4
5226 3774 4026 4027 4082	4337	5219 5221 5231 5232	1245
Same (7,900 feet southwest of opening, 45-Inch cut).  Wehrum, Lackawanna No. 4 mine, Lower Kittanning (B or Miller) bed (half mile in mine).  Same (2,000 feet northeast of shaft, 50½-inch cut).  Same (1,900 feet southwest of shaft, 41½-inch cut).  Same (run of mine, sample 1).	White, Mooween mine, Upper Freeport (E) bed (700 feet southwest of opening, 34½-inch cut)  Same (485 feet west of opening, 37½-inch cut)  Same (run of mine)	Punxsutawney, 3 miles north of; at Delancey in Young Township, Adrian mine, Lower Freeport bed (7,300 feet northeast of opening, 614-inch cut).  Same (6,800 feet east of opening, 60-inch cut)  # miles north of; Florence mine, Lower Freeport bed (7,920 feet east of opening, 69-inch cut).  Same (7,920 feet southeast of opening, 733-inch cut).	Escanton, anthracite culm.  SCHUYLKILL COUNTY.  Mineraville, 2 miles west of; Phoenix Park No. 3 mino, mond bed.

Table of chemical analyses-Continued.

ence.	Page of this bulletin.	752	752	753	753	754	754	754	754	754
Reference.	Bul- letin No.		:						:	
Calorific value.	British thermal units.	13, 298 114, 882 112, 523 112, 523 113, 523	13, 351 13, 810 15, 248	13, 927 14, 610 15, 615	13, 937 14, 503 15, 649 14, 155	14,656 15,682 14,175	15, 763 14, 195 14, 575	14, 134	14, 247 14, 708	14, 092 14, 715 15, 750
Calorifi	Calo- ries.	7,388 8,268 6,957 7,121	7, 417 7, 672 8, 471	7,737 8,117 8,675	7,743 8,057 8,694 7,864	8, 142 8, 712 7, 875 8, 121	8,757 7,886 8,097	8, 73 8, 179	8,752 7,915 8,171	7,829 8,175 8,750
	Air-dry-ing loss.	1.5	2.6	4.1	3.2	1.9	1.6	3.2	2.4	3.5
	Oxy-gen.	4.19.9.1.4 9.8.13.8.13	2. 18 2. 18 2. 41							
	Nitro-gen.	0.63 .65 .65 .66 .68	.92							
Ultimate.	Car-	84,36 94,39 80,83 80,83	93.00 81.35 84.15 92.91	0 0 0 0 0 0 0 0 0						
Ω	Hy- dro- gen.	1.89 1.77 1.77 1.91	3.5.2.5 2.08 0.09 0.09	0 0 0 0 0 0 0 0 0 0 0 0						
	Sul- phur.	0.89 .92 1.00 1.05		27.	32.55	25.48	1.65		5.69.	56.65
	Ash.	7.83 8.06 13.39 13.71	9.12	6. 13	7.04	7.04	7.68	6.28	5.97	6, 29
nate.	Fixed carbon.	88.21 90.75 82.77	98.17 84.28 87.19 96.27	73. 55 77. 16 82. 46	73.56 76.53 82.58	77. 42 82. 84 70. 33	78.21 69.94 71.81	77.96	82.54 74.73 77.16	77.06
Proximate	Vola- tile mat- ter.	1.19	3.3.27	15.64 16.41 17.54	15.51 16.14 17.42	16.04 17.16 19.59	21. 79 19. 77 20. 30	22.04 15.67 16.32	17.46 16.16 16.68	15.68 15.68 16.37
	Mois-	2.30	3.33	4.68	3.89	3.04	2.61	3.99	3.14	4. 23
	Con- di- tion.	- CC-CC-CC-CC-CC-CC-CC-CC-CC-CC-CC-CC-CC	m <b>−1</b> 01 m	-016	-000-	10100 HC	10-01	2 - 3	8-8	m = 0 m
Sample.	Kind.	4 4	¥	4	4 4	4	V	¥	4	4
מס	Lab- ora- tory No.	5954	5953	6261	6262	6304	6305	6264	6265	6266
	Locality, bed, etc.	PENNSYLVANIA—Continued. schuylkill county—continued. St. Nicholas, St. Nicholas (No. 209) mine. Mammoth (middle splif) bed, (600 feet west of opening, 134-foot cut). Same (1,380 feet west of opening, 106-inch cut)	Tower City, 1 mile north of; West Brookside mine (300 feet north of opening, Lykens (No. 5) bed, 110-inch cut).	Somerspr county.  Boswell, Orenda No. 2 mine, Upper Kittanning (C') bed (head of left flat 7,3,400 feet in, 78‡inch bed sod-inch ent)	Same (feed of right flat 8,5,000 feet in, 73-inch bed, 62‡-inch cut).	in, 78‡-inch bed, 67‡-inch cut).  Elk Lick, 1½ miles portheast of Metchants No. 3 mine, pittabareschool cicht 1, off with 2, 2, 300 con.	Same (pillar in room 12, 4,800 feet northeast of opening, right heading 5, 64-inch cut).	Jenner, Jenner No. 2 mine, Upper Kittanning (C') bed (face heading 2, 5,400 feet southwest, 44g-inch	bed). Same (face heading 1, 4,080 feet southwest, 463-inch cut).	Same (butt entry 2, off heading 10, 3,665 feet southwest, 473-inch cut).

	ANALYSE	S OF COA	LS IN T	HE	UNITED	STAT	ES.		173
155 75 75	755	756	756	756	757	10 1	757	757	167
	330 330 330 330 330			:					
14, 413 14, 139 14, 139 14, 560 15, 601 13, 808 14, 333 15, 610	13, 705 14, 076 15, 725 13, 424	13,853 15,687 15,970 14,113 14,428 15,715	14, 220 14, 525 15, 776 14, 139 14, 462 15, 759		13,828 14,193 15,695 13,841 14,268	13,783 14,136 15,665	13,920 13,909 15,683 13,743	15,707 13,730 14,045	15,649
7,784 8,007 8,007 8,009 8,007 8,007 8,007 8,007 8,007 8,007	7,614 7,820 8,736 8,736	7,696 8,715 8,872 7,841 8,016 8,731	7,8,8,7,9,8,8,7,64,000 7,8,855 7,855 7,855 7,855 7,855 7,855		7,682 7,885 8,719 7,927	5,77.5,8,1 1,7,853.7,2 1,7,853.7,2	7,727 7,727 7,635 7,803	8,726 7,628 7,803	8,694
6 6 6 6	3.2						1		
		3.56		3.71					2.71 1.82 2.03
	1.25	1.29		1.35					1.25
	75.40	77.81 88.10 90.26		81.72 89.48 89.72					79.17
	4.19	3.97 4.50 4.61		4.45					4.29
77.08. 8.20. 8.00. 8.00. 8.00. 8.00. 8.00. 8.00. 8.00. 8.00. 8.00. 8.00.	22.1.23.1.25.05 22.00.83.6 2.00.83.6	2.11 2.38 2.38 70 72 78	09.05.25.88.69	727.	52.1.1.1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	258835	45955 45958	2522	42223
7.45 7.66 6.47 6.60 7.87 8.17	10.21 10.49 5.33 5.67	8.01 8.01	7.76 7.93 8.05 8.23	8.00	9.32 9.57 8.86 9.13	9.52	11.31	10.02	10.37
25.74 26.74 27.75	70.94 72.85 73.39 76.10 68.32	70.47 79.80 72.03 73.63 80.20	72.14 73.68 80.03 72.20 73.85 80.47	73.84 74.53 81.07	72.72.72.72.72.72.72.72.72.72.72.72.72.7	71.51	72.18 81.38 70.34 71.88	80.38 71.81 73.45	81.84 72.57 73.32 81.90
16.14 16.60 17.98 16.83 18.03 18.03 18.03 17.66			18.00 18.39 19.97 17.52 17.92 17.92	17.24 17.40 18.93	15.99 16.41 16.14 16.64	16.89	16. 51 18. 61 17. 16	19.62 15.93 16.30	18.16 16.03 16.20 18.10
3. 67 89 89 78	3.90	2.18	2.10	. 92	2.57	2.50	2, 15	2.24	1.03
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6259	2016	306	305	10455	312	314	316	317	10454
Jerome, Jerome No. 1 mine, Upper Kittanning (C7) bed, west entry 1, off main entry, 4,700 feet west, T1-inch bed, 65-inch eut.  Same (room 9 off south 6, off west entry 2, 5,000 feet southwest, 59i-inch bed, 48-inch cut.  Same (cast entry 2, 3,900 feet southeast, 71-inch bed, 61-inch cut.)	Kimmelton, Kimmolton mino, Lower Kittanning bed (butt entry 2 off right 6, 3,200 feet south of drift mouth, 364-inch cut). Same (left ontry 8, 3,000 feet southeast of drift mouth, 34,5-inch cut). Same (run of mino).	Listle, 4-mile north of; Stauffer No. 1 mine, Lower Free- port bed (face of room 5, off right heading 6, 2,625 feet northwest of drift mouth, 40,1c-inch	Same (ace of room No. 4, off left heading 8, 2,860 feet northwest of drift mouth, 3947-inch bed, 3547-inch cut). Same (ace of room No. 25, off left heading 6, 2,950 feet northwest of drift mouth, 38 14-inch bed, 344-inch cut).	Same (composite of Nos. 305-307)	MacDonaldton, Pen Mar No. 3 mine, B bed (face of south main heading 3, 6,500 feet southwest of drift mouth, 40-inch bed, 331-inch cut).  Same (face of right 13, of south main heading 3, 6,370 feet southwest of drift mouth, 51-75.	Same (face of left 6, off south entry 3, 6,490 feet southeast of drift mouth, 513-inch bed, 463-inch cut, 6,500 feet southeast of drift mouth, 513-inch bed, 463-come (face of face of	Same trace from 5 or rights, or south than 3, 6,20feet southwest of drift mouth, 54-inch bed, 454-inch cath, same (near face of right 5, off south main heading 4, 6,700 feet southwest of drift mouth.	54}-inch bed, 40}-inch cut). Same (near face of right 2, off south main heading 3, 3,500 feet southwest of drift mouth,	5514-inch bed, 45 <sub>74</sub> -inch cut). Same (composite of numbers 312-317)

Table of chemical analyses—Continued.

Ge.	Page of this bulletin.	758	758	758	758	758	758	759
Reference.	Bul- letin th No. bu	•			0 0 8 8			
	British I thermal lo units.	13,761 14,191 15,574	, 662 , 997 , 596	15,060 13,488 13,854 15,610	292 ,692 777 049	, 463 , 015 , 445	8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.	13,550 13,550 13,650 15,650
Calorific value.	Calo- the ries.	7,645 13 7,884 14 8,652 15		7,802 8,700 15,493 13,697 8,672 15		8,035 7,786 14 8,025 14		
Cal	1	8,7,7	1,20,00,1,1	- x - 1 - x - x - x - x - x - x - x - x	2 0 7 7 8 %,7		: : :	N ::0::
	dry- ing loss.				<u> </u>	2	24	i 6
	Oxy-			4.28	3.70			
	Nitro- gen.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.34	1.36			
Ultimate	Car- bon.	8 8 8 8 8 8 8 8 8 8 8		79.14	89.04			
Þ	Hy- dro- gen.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		4. 28	4. 67			
	Sul-	1.62 1.67 1.83	1.77	2.22	1.05 2.77 2.05 2.05 2.05 2.05 2.05 2.05 2.05 2.05	82523	 	8649
	Ash.	8. 6.1 8. 88 8. 88	10.56	10.32 10.95 11.25 10.03	10.14 6.66 6.85 8.10	8.34 8.21 8.21	10.94	7.86 8.13 12.45
nate.	Fixed car-	72. 75 75. 02 82. 33	71.60	73. 49 81. 95 69. 87 71. 76 73. 48	74. 33 71. 29 73. 27 73. 27 75. 66	71.81 78.34 69.53 71.67	78.08 77.27	286.770.88 28.272.89 27.272.89
Proximate.	Volatile mat- ter.	15. 61 16. 10 17. 67		16, 19 18, 05 16, 54 19, 14 15, 36	15.53 19.34 19.88 19.88	20.12 20.12	22. 73 22. 73	20.22.20.21 20.22.25.25.25.25.25.25.25.25.25.25.25.25.
	Mois- ture.	3.03	2.39	2.64	2.71	2.98		3. 28
	Con- di- tion.	126	-000-	~~~~~	00-00-	10 m m	m → c1 m	
Sample.	Kind.	¥.	4 4	4 4	4 4	: 4	4	4 4
ŭ	Lab- oru- tory No.	308	309	311	6301	6302	6307	6303
	Locality, bed, etc.	PENNSYLVANIA—Continued.  SOMERSET COUNTY—Continued.  DeDonaldton—Continued.  14 miss southwest of; Pen Mar No. 2 mine, B the ded (face of room 6, of level), between left entries I and 2,2,000 (feet west of drift mouth,	Same (face of left entry 3, off north main 2, 2,900 feet northwest of drift mouth, 3245-inch bed, 4647-inch cut).  Same (north main heading, 200 feet north of	right heading 8, 3,000 feet north of drift mouth, 524g-inch bed, 4944-inch cut). Same (neck ofrooms, off right 1, off north main heading, 1,300 feet northeast of drift mouth). Same (composite of Nos. 308-311)	eyersdale, 14 miles southwest of; Elk Lick No. 1 mine, Fittsburgh bed (room 1, butt 2, off right 2, pump heading, 484-mob out), come of the continues of the co	inch (10). Same (Elk Lick No.2 mine, Pittsburgh bed, right 6, off west main, 2600 feet northwest,	78-inch cut). Same (Elk Lick No. 3 mine, Redstone bed, extension of left heading 2, 2,000 feet northeast, 564-inch cut).	Same (Summit No. 1 mine, right heading 4, 4,000 feet northwest, 71-inch cut).  Same (Summit No. 2 mine, Redstone bed, right heading 2, 2,000 feet northeast, 472-inch cut).

759	766	092	260	200			761	761	761	761	761	192	192	192	762	762
		:			261	261	2				-		:			
13,360	15, 628 14, 179 14, 627 15, 730	14,130	15,763	15,719	15, 799 14, 499 14, 659 15, 847	16,042	15,800			* 0 4 * 0 0 * 0 0 * 0 0 * 1 0			14, 370	15,750 14,260 14,630	15, 760	
7,422	8, 682 7,877 8,126 8,739	8,125	8,757	2, 733	8, 144	8, 912	8,842						7,985	8,750 7,925 8,130	8,755	
2.9	:= : :	2.5	2.3	2.1			T. 8	1.8	1.7	1.7	4	1.6	1.7		2.5	2.5
					2.2.3									2.5.2		
					1.38	1.51	1.36						1.31	1.31		
					81. 98 82. 89 89. 60									90.53 81.61 83.72		
					4.4.4 4.13 4.65	4; 4; 4 8; 2; 8; 8; 8; 8; 8; 8; 8; 8; 8; 8; 8; 8; 8; 8; 8	16.4		* * * * * * * * * * * * * * * * * * * *					4.34		
1.41	4233	65.	1868	528		16.	1.45	525	588	888	\$551 	8.85	 888	11.138	1.39	8888
10.80	6.80	6.98	7.53	7.31		6.04	6.5	6.6	8.4	7.0	5.5.	5.6	6.31	6.97	6.5	1.4.
					82. 48 75. 69 82. 73	76.76		86.0 77.3 78.9	774.3	25.25		30.4 50.4 6	25.5 77.8 80.0	77.0 78.8	32.5 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	87.0 83.3 87.0
					17.52 15.80 15.98 17.27	16.61		14.0	10 O 10 I	240	210101	0100		10100	10010	0.000
3.71	3.06	3.38	3. 12	2.95	1.10	. 59	2.5	2.3	2.3	2.5	2.1	2.4	2.4	2.5	63	60
-101	m → c1 m	-010	2-030	20-0	ത്തെത്ത	4-0	1604-161	α	m-01	, — ci	2-01	. — c₁			m − 01	∞ – e₁ e₂
<	4	٧	V	V	0	0	∢	٧	4	4	4	Y			٧	4
6309	6268	6269	6267	6270	1039	1057	9004	9006	8006	9006	2006	6006	9021	9020	8949	8950
Same (right heading 7, 3,500 feet northeast, 481-inch cut).	Ralphton, Ralphton No. 1 mine, Upper Kittanning (C') bed (west 2, off right entry, 7, 4,000 feet west, 414-inch bed, 374-inch eut).	dip 1, 2,300 feet south, 44g-inch bed, 39g- cut).	Stoughton, Jenner No. 1 mine, Upper Kittanning (C') bed (right entry 3, off dip 1, 1,300 feet north-	eust, 402-men cut). Same (dip 3, 1,500 feet southwest, 443-inch cut).	Windber, Eureka No. 31 mine, Lower Kittanning (B) bed, run of mine (lump) coal shipped by operator (sample 1).	Same (sample 2)	Same (pillar, room 4, south entry 7 off west entry 46 off main, 34-inch cut).	Same (pillar, room 13, south entry 3 off west entry 46 off main, 46-inch cut).	Same (room on left entry 2, new drift, 43-inch cut).	Same (pillar 13 off east entry 56 off main entry, 474-inch cut).	Same (pillar in room 4 off east entry 36 off main, 45-inch cut).	Same (room 1 off southwest entry 15 off main entry, 463-inch cut).	Same (composite of Nos. 9004-9007)	Same (composite of Nos. 9008 and 9009)	Euroka No. 32 mine, Lower Kittanning (B) bed (main entry pillar, 8,000 feet S. 65° E. from	drift mouth, 424-inch cut). Same (pillar, west entry 4 off right entry 12 off main entry, 6,800 feet S. 60° E. from drift mouth, 46-inch cut).

Table of chemical analyses—Continued.

			-													6	
	SQ.	Sample.			Proximate.	mate.			)	Unmare			`	Caloriii	Calorine value.	Kelerence.	nce.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Volatile matter.	Fixed carboon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
PENNSYLVANIA—Continued.																	
Windber, Eureka No. 32 mine—Continued. Same (right entry 26 off main entry 41, 12,000	8951	Y	.==0	3.2	13.0	78.5	بن. ده ب	1.30					2.5			:	762
Same (pillar, right entry 6 off main entry, 2.800	8952	Ą	 	2.7	13.5	85.5 78.5 9.0 9.0		8488					2.0				762
Same (pillar, left entry 5 off main entry 2, 3,300 feet N. 80° E. from drift mouth, 43½-inch cut).	8953	V	30H0	3.0	13.5	85.5 79.2 81.6	4; 4; ∞ co	20.22.03					2.3				762
Same (composite of Nos. 8949-8953)	9022		ω⊣01	3,3	0.65 0.05 0.05	86.0 79.0 81.7	4.82	9.7.8. 18.	4.48	83.67	1.24	5.17	2.4	8,085	14, 553	:	762
Eureka No. 35 mine, Lower Kittanning (B) bed, (main air course, 37½-inch cut, wet sample).	8875	4	m → 010	4.6	0.044	86.0 76.5	6.2	1.05	4. 47	90.91	1.34	2.43	4.0	8,785	15,813		763
Same (right entry 23 off main entry, 434-inch cut).	8874	V	2-010	5.9		76.4	7.7	11:2					2.2				763
Same (pillar, room 33, left entry 16 off main entry, 47-inch cut).	8879	V	2-010	2.5		80.17	6.9	1111					1.8				763
Same (pillar, room 6, left entry 8 off main entry, 31-foot cut).	8878	V	o ← ¢1¢	2.5		28.08	5.6	388					1.00			:	763
Same (right entry 23 off north entry, 3-foot cut).	8873	V	2-101	2.9		80.3	6.0	1.35					2.1			:	763
Same (pillar, right entry 11 off north entry, 421-inch cut).	8877	4	co ← c3 c	2.5		86.0 7.86.0	6.3	1.50					1.8				292
Same (left entry 21 off main entry, 44-inch cut.	8876	4	n – 01 m	3.5	13.0	77.1 79.7 85.5	6.6	1.05					5.3				763

763	763	764	764	192	764	764	764	192	192	764	194	764	765	765	785
		:	:												
14,130	14,380	047,61			14,070	15,730 14,230 14,600 15,730	14,240	10, 700				14,100	15, 690		
7,8501	8,190 1,985 190 190	0, 140			7,820	8,740 7,940 8,110 8,740	8,235	OF J (0				8,080	8,720		
8:	1.8	2.0	03	e .	01 01	1.5	3.0	1.7	.03	-t'	2.7	ां ा	2.6	3.0	3.0
25.27	1 <del>-</del> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ō i			5.62	3.29						1.69			
1.25	1.34	O#-T			1.17	1.31						1.32	J47		
84.12	32.25	#0.0#			79.84							80.78			
4.4.	8.4.4.4. 9.8.30 9.1.10	# :			4.32							4.58			
1.31	1.00	13:3			1.50	1.68 1.75 1.80 1.95	1.65	101010	9888	11:1-	1.13	1.85	1.58	  	5888
6.66	6.17	7.6	7.8	7.8	7.55	7.1	5.5 5.8	7.7	6.9	5.7	9.1	7.07	6.4	5.9	5.2
80.3	28.78.0 28.13.0 20.23.0	5 15 55 5 15 55 5 25 51	7.5.5.5 5.0.5.5 5.0.5	85.0 77.3 79.5	77.4	86.5 73.3 81.0	76.6	7.5.5.0	26.7.7.2 2.7.8.2 2.1.8.2	80.08 20.08 20.08	20.57 0.05 0.05 0.05	24.5	74.8	83.0 77.6 80.4	85.5 76.7 79.6 84.0
13,4						13.5 17.5 18.0 19.0	11.0	18.0	13.5	13.0	17.0	15.5.1 0000	15.5 16.0	13.0	15.0
رن ت	2.5	2.6	01	2.9	3.0	2.1	3.9	2.5	3.5	3.1	3.4	3.1	3.3	ы гэ	3.6
-010	20 m C3 c		20 m C1	m → 010	2-03	m 01 m	010	0 - C1		o 03 c	o → 61	2-01	m → 61	0-0	m = 01 m
<u></u>		٧	V	V		<	4	₹	4	4	4		4	4	4
8930	8940	8964	8962	8966	9025	8943	8944	8945	8946	247	89.48	9019	8954	8955	8956
Same (composite of Nos. 8873-8876)	Same (composite of Nos. 8877-8879)	Eureka No. 35-C' mine, Upper Kittanning (C') bed (right entry 2 off main entry, 53-inch eut).	Same (main entry, 53½-inch cut)	Same (left air course 2 off main entry, 494-inch cut),	Same (composite of Nos. 8964-8966)	14 miles west of: Eureka No. 30 minc, Lower Kittening (B) bed (pillar, right entry 1 of right entry 10, 9,500 feet from drift mouth, 394-inch	Same (pillar, left entry 10 off main entry, 9,500 feet from drift mouth, 373-inch cut).	Same (right entry 13 off main entry 1, 10,000 feet from drift mouth, 344-inch eut).	Same (room 11, left entry 11 off main entry 2, 10,800 feet from drift mouth, 36;-inch cut).	Same (left entry 15 off main entry 2, 11,500 feet from drift mouth, 33%-inch cut).	Same (left entry 15 off main entry 1, 10,500 feet from drift mouth, 433-inch cut).	Same (composite of Nos. 8945-8948)	2 miles south of; Eureka No. 33 mine, Lower Kit- tanning (B) bed (pillar, main entry, 6,000 feet	from drift mouth, 403-inch cut). Same (pillar, right entry 12, 4,600 feet from drift mouth, 403-inch cut).	Same (pillar, main entry 2 off right entry 9, 4,500 feet from drift mouth, 37-inch cut).

Table of chemical analyses—Continued.

	20	Sample.			Proximate.	mate.			n	Ultimate.				Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tille mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro-gen.	Oxy- gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulle-tin.
PENNSYLVANIA—Continued. SOMERSET COUNTY—continued.																	
Windber, Eureka No. 33 mine—Continued. Same (pillar, room 1, left entry 5, 2,500 feet from drift mouth, 434-inch cut).	8957	V	-010	3.6	14.0	80.9	4.5	0.60			-		8 : 8				765
Same (pillar, left entry 3 off main entry, 1,200 feet from drift mouth, 421-inch eut, wet	8928	¥	2 H C) C	8.2	12.5	80.8	5.2	838					7.3				765
sample). Same (composite of Nos. 8954–8968)	9023		m=010	4.6	13.5	80°.2 80°.2 80°.2	5.18	22.52	86.44	81.68	1.35	6.39	3.7	7,975	14,360		765
14 miles south of, Eureka No. 34 mine, Lower Kittenning (B), bod (pillar, south entry 1 of	8959	4	2-010	3.1	14.0	78.1	7.6	1.33	4.50	80.00	T. 00	7.00	2.5	8,010	13, 970 14, 420		992
Right entry 13 off main entry, 4.4-inoleut,. Same (pillar, room 19, left entry 15 off main entry 2, 33-foot cut).	8960	4	2 H C1 C	3.2	13.5	77.3	6.0	3888	* * * * * * * * * * * * * * * * * * *				2.4	0,2,30 2,230 2,230 2,230 2,230	14,340		992
Same (room 21, left entry 2, oil main entry, 41-inch cut).	8961	4	0-01	3.4	15.0	75.0	7.1	222				-	2.7	90, 60	1000		992
Same (main air course, 43-inch cut)	8962	٧	20-01	2.7	15.0	76.1	6.2	888					2.2				266
Same (south entry 5 off right entry 18 off main entry 1, 47-linch cut).	8963	4	m-01	3.5	16.5	783.0	7.3	2222					2.9				992
Same (composite of Nos. 8961–8963)	9024		2-01	3.2	14.0	75.9	6.90	1.33	4.47	83.24	1.28	5.51	2.6	8,115	14, 140	0 0 0 0	992
14 miles northeast of; Eureka No. 36 mine, Lower Kittanning (B) bed (room 1, off right entry	6274	¥	n 01	2.83	15.66	75.00	6.51	2.245	4.68	89.62	1.38	2.97	2.1	8,7,8 130 130	15, 730 14, 220 14, 634		191
21, 8,500 feet north of drift mouth, 43-inch cut). Same (right slant 14,9,000 feet northeast of drift mouth, 42k-inch cut).	6275	4	m = 01 m	3.31	17.28 14.81 15.32 16.27	82. 72 76. 23 78. 84 83. 73	5.65	2.36			0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.6	8,223	15,685 14,312 14,801 15,718	*	707

707	707	792	767	292	792	769	769	692	269	692	769	769
				:	:				:	:	:	
14, 607 15, 149 15, 824				14,300	14,500 15,140 15,890						9 1 0	13,930 14,410 15,770
8, 115 8, 416 8, 791				7, 945 8, 300 8, 810	8,410 8,825 825						0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7,740 8,005 8,760
3.0	9.4	ei i	3.9	3.4	C.C.	ci :	ci +	C3	-74 -C≩	01 00	2.7	ei ci
				1.82	6.29			0 • 0 0 • 0 0 • 0 0 • 0 0 • 0				1.89
				1.26	1.36			1 · · · · · · · · · · · · · · · · · · ·				1.31
					82. 59 86. 21 90. 48			0 0 0				79. 79 82. 53 90. 33
				84.44	4.4.4.			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				4. 43
25.55.52	584888	3888	286.585		1111	555	228	1888	1888		188	1117
4.11 5.5 4.00 5.6	က်က် ကတ ဗန	44	4.4. 70.70 4.4. 0.80	5. 59	4.72	30 30 03 123	8 3 8 3 8 3	4.0		8.2	00,00 01 ru	8.34
76.95 79.80 83.35 80.4	8.25.25 2.5.25 2	86.5 78.9 81.8 85.0	82.1 86.0 81.2	86.0 81.7 86.7	86.0 86.0 86.0	76.8 79.0 86.5	26.2	74.7	\$ 55.55 \$ 50.50 \$ 50.50	3,5,5,5	75.6	85.5 47.9 85.5
15.36 15.94 14.05		13.5 14.0 15.0	25.54.51.52.52.52.52.52.52.52.52.52.52.52.52.52.	4.5.5.5. 0.0.0.c.		15.00 15.00 15.00 15.00	51512					14.5
3.58	3.2	3.0	6.6	4.3	4. C3	3.0	3.0	2.9	3.1	5.9	3.2	3.3
-010-010	0-1010-0	m → 01 m	-000-01	: - C1 ::	-0100	C1 C2	-010	-010	- c1 c	0-010	o — 01 €	n = 01 m
<b>4 4</b>	4 4	4	4 4	*	:	<	4	٧	٧	٧	<	
6276	8021	8923	8924	9026	9027	8969	8970	8971	8972	8973	8974	9030
Same (right entry 19 off main slant 3, 8,500 feet northoast of drift mouth, 444-inch cut). Same (main entry 1, 8,300 feet N. 21° E. of drift mouth, 3-foot cut).	Same (north entry 4, off left entry 18 off main entry 1, 7,800 feet north of drift mouth, 34-foot cut).  Same (piller? right entry 13 off main entry 1, 5 no feet No. 8, of drift mouth, 34-free	Same pilar 14, right entry 16 off main entry 2, 6,300 feet N. 55° E. of drift mouth, 43-luch cut).	Samo (pillar 20, right entry 10, off main entry 3, 6,200 foct east of drift mouth, 414-inch cut).  Samo (main entry 2, 9,800 feet N. 46° E. from drift mouth, 454mch cut).	Same (composite of Nos. 8920, 8921, and 8925)	Same (composite of Nos. 8922-8924)	34 miles southwest of; Eureka No. 39 mine, upper Kittanning (C') bed (south entry 7 off loft entry 1, 5,300 feet from drift mouth, 344-ineh	Same (room 16, south entry 9 off right entry 1, 5,300 feet from drift mouth, 394-inch cut).	Same (north entry 7 of right entry 1, 5,100 feet from drift mouth, 363-inch cut).	Same (room 20, north entry 4 off right entry 1, 4,700 feet from drift mouth, 374-inch cut).	Same (main entry, 5,200 feet from drift mouth, 34-foot cut).	Same (left entry 9 off main entry, 5,300 feet from drift mouth, 42½-inch cut).	Same (composite of Nos. 8969-8974)

Table of chemical analyses-Continued.

Lab- ora- tory No.
3837
9665
9654
9652
9653
9656
9655
9664
3441

	773	27. ETT	773	774	774	775	977
8 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	300 48 300 300	332	322 332	300 290 336 336	290	290	300
568 13,622 719 13,894 524 15,343	964 14,335 102 14,581 ,561 15,410	6,801 12,212 7,118 12,812 7,139 14,742 7,839 14,146 8,060 14,568		7, 915 14, 217 7, 915 14, 217 8, 555 15, 399		8,558 15,401 7,785 14,083 7,981 14,366 8,509 15,316	
2.0	7,00,00	1.2 1.2	.677	1.5	1.5	1.0	
7. 93 6. 31 6. 97			6.50			6.25	
1.45			44.			1.53	
74.37			76.86	9		77.99 79.96 85.25	
4.81 7.17 7.17			5.13	1		5.26	
######################################	:	11.266	199991	2.58.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	13985		2.02.02.03.03.03.03.03.03.03.03.03.03.03.03.03.
5.88 6.08 6.08 9.25 20.27 21.18	5.27 5.36 5.36 16.95 17.40	13.09 13.09 5.34 5.48	6.95 7.13 7.29 7.43	6.26 6.34 5.40 5.56	50.0 50.0 88.8 88.8	6.85	6.59 6.59 83 83 83 85 85 85 85 85 85 85 85 85 85 85 85 85
68.68.64.65.65.74.65.75.75.75.75.75.75.75.75.75.75.75.75.75	8.8.9.8.8.8 8.8.8.8.8.8.8.8.8.8.8.8.8.8.	59. 62 57. 51 58. 98	55.94 57.82 57.82 57.82	56.24 56.24 57.93 59.73	57.25 57.25 60.97 58.70	85.57.69 8.57.89 8.57.89 8.57.89	55.97 56.55 60.46 53.39 60.02
32.27 33.34 35.50 30.55 31.16 30.43 31.79	433.98 433.98 434.02	23.68 24.08 25.08 25.08 25.08	38.38.46 34.07 34.07	36.23 39.23 34.70 74.71	33.04 33.03 33.46 50	38.35.88 37.88.35 88.22 88.23 88.23 88.23	36.09 39.56 39.98 39.98 39.98
3.21	1.70	4.45	2.56	1.22	3.01	2.46	1.72
<u> </u>	0-00-00		0-00-00	2400-01		10-010-0	00-00-00
4 0 H	<b>m m</b>	g <	v o	B 4	a 4	g g	<b>д</b> д
3442 4098 4098	1033	3421	3422	1967	1050	2068	1035
Same (1,600 feet southwest of opening, 59-inch out).  Same (run of mine)	Anderson (Venetia), Blanche mine, Pittsburgh bed, main bench, 674-inch cut	Buffalo, 12 miles south of; Imhoff bank, lower bench of Washington 7±-foot bed, 45-inch cut.  Charleroi, Charleroi mine, Pittsburgh bed (4,000 feet southwest of opening, 63-inch cut).	Same (4,000 feet northwest of opening, 634-inch eut).	Ellsworth, Ellsworth No. 1 mine, Pittsburgh bed, main bench, 65-inch cut.  Same (room 17 off north butt entry 5, 3,000 feet north of shaft, 65-inch cut.)	Elisworth No. 2 mine, Pittsburgh bed, main bench, 64-inch cut. Same, from 10 off butt entry 1, 3,000 feet south-	Ellsworth Nos. 1 and 2 mines (mixed), over 3-inch bar screen.  Frankfort (Barver County), 1 mile southeast of; Ollum	Hackett, Nottingham mine, Pittsburgh bed, breast and bottom, 5r <sub>2</sub> -foot cut.  Russell mine, Redstone bed, 40-inch (entire bed)

Table of chemical analyses-Continued.

1 . 1	0 ×6.	87.7. 1.7. 1.7. 1.7. 1.7. 1.7. 1.7. 1.7.
Reference.	Page of this bulletin.	
	Bul- I letin No.	300
Calorific value.	British thermal units.	13, 507 14, 581 14, 581 14, 14, 14, 14, 14, 14, 14, 14, 14, 14,
Calorif	Calo- ries.	7,7,7,8,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7
	Air-dry-ing loss.	1.0
	Oxy-gen.	0007000 000788400 000788400
	Nitro- gen.	448868 468868
Ultimate.	Car- bon.	78 779.78 779.79 779.79 779.79 779.79 779.79 779.79 779 7
	Hy- dro- gen.	ారాభాశాధారా జో4నట్లలో
	Sul- phur.	108488888888888888888888888888888888888
	Asb.	99999777888888888888888888888888888888
mate.	Fixed carbon.	48888888888888888888888888888888888888
Proximate.	Vola- tile mat- ter.	%%42224%2%4%%%%%%%%%%%%%%%%%%%%%%%%%%%
	Mois- ture.	2 48 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
	Con- di- tion.	наплапнапнапнапнап напнапна
Sample	Kind.	B B C C P B B
02	Lab- ora- tory No.	1051 1055 6859 6860 6860 7432 7459 7460
	Locality, bed, etc.	PENNSY LVANIA—Continued.  washington country bank, Pittsburgh bed, 58-inch cut.  Mariana (near Ellsworth), Rachel and Agnes mines, Pittsburgh bed (first supply but raise, air source, 678-inch cut.)  Mariana (near Ellsworth), Rachel and Agnes mines, Pittsburgh bed (first supply but raise, air same (150 feat northwest) of Fulton shaft, right dip loaded track, 704-inch cut).  Same (nut coal).  Same, Agnes mine, Pittsburgh bed (last open crosscut between No. 1 and No. 2 Blanche cutries, 3000 feet southwest of opening; 54-foot bed, 5-foot 4-inch cut).  Same (1,800 feet north of Agnes shaft; 5-foot bed, 5-foot 4-inch cut).  Same (abut 1,200 feet northeast of opening, 5-foot 64-inch cut).  Same (abut 1,200 feet northeast of opening, 5-foot 64-inch cut).

977	677	779	780	780	780	780	780		781		28	2		
300	1/8	84	1/8	48	87	300	300		8=28=	280	332	330	332	332
									13, 613 13, 997 15, 446	13, 406 13, 842 15, 511	15,080	14, 152	13, 459 13, 699 14, 178 15, 522	15, 568 13, 311 13, 864 15, 503 15, 637
								:	7,563 7,776 8,581	7,448	8, (11	7,862	7,566 7,831 8,573	8, 649 7, 395 7, 702 8, 613 8, 687
			1.2		1.6	1.3	1.7		1.6	2 2 2	1.7	1.0	2.	3.1
										7.61	0.03		9.71 6.96 7.59	7.71 9.01 6.38 6.45
										1.48	T.00		1.39	83888
										74.33			74. 42 77. 03 84. 33	85.34 76.38 85.42 86.42
								:		4.96				5.36 5.26 5.33
25.55		25.85	1288 1111	581 88 8 8 8 8 8 8	2.11.9	 1888 1881	444 4485		85.27.23	1.26	1.02	25.23	1.05	1.00
8.36	6.18	11.93	6. 62	12.65	11.02	18.21	19.66	:	9.13 9.39 8.07 8.30	10.41	6.45	6.32	8.36	10. 16
53.70									57.80 59.42 65.58 59.21 59.89		58.71	59.30	58. 44 63. 98	67.73 60.12 67.24
36.20									30.34 31.19 34.42 30.92 31.81				32.90 36.02	28. 13 29. 30 32. 76
1.90		1.95	3.05	2.95	3.63	2.27	2.90		2. 73	3.15	2.81	2.01	3.39	3.98
03 to	<b>⊣</b> 01 m		0 010		0-1010	o 01 0	o → 01 m		-00-00	n → 01 m =	# C1 c	2-010	o → 61 co	4-004
<b>A b</b>	9	A	я	=	2	n	n		<b>e</b>	၁	4	۲.	၁	ပ
1032	1000	1070	1591	1069	1590	1589	1588		1942	2187	4351	4352	4489	4498
oś s	wurdocksvine, natural outerop on Digger Run, Ames bed, 2±-loot (entire bed) cut.	Paris, Fulton's country bank, Pittsburgh bed (41-foot bed), 561-inch cut.	Sodom School, Matchett's country bank, Pittsburgh bed, 54-inch (entire bed) cut.	Warriors Point, McCausland's country bank, Pitts-burgh bed, 4-foot (entire bed) cut.	Westland, Midland No.3 mine, Pittsburgh bed, 44-foot ent.	Zollarsville, Horn's country bank, Waynesburg (5-foot) bed (lower bench, 31-inch out).	Same(upper bench,22-inch cut)	WESTMORELAND COUNTY.	Greensburg, 4 miles north of, Jamison No. 2 mine, Pittsburgh bed (room 19, butt entry 10, 3,500 feet north of shaft, 812-inch ent). Same (main west entry, 2,000 feet northwest of shaft, 82g-inch eut).	Same (lump, over 14-inch bar screen)	Herninie, a mile north of, Keystone shaft, Pittsburgh bod (4,000 feet southeast of opening, 744-inch	Same (room 7, west butt entry 1, 1,400 feet north of opening, 623-inch cut).	Same (run of mine)	Huff, Keystone No. 1 mine, Pittsburgh bed, run of mine.

Table of chemical analyses—Continued.

+	ANAL.			_	
Reference.	Page of this bulletin.	SST	784	784	784
Refer	Bul- letin No.	28 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		:	
Calorific value.	British thermal units.	13, 378 15, 883 16, 642 16, 642 17, 713 17, 71	11,093 13,831 9,313 10,737	13,723 5,976 7,830	13, 120 11, 063
Calorif	Calo- ries.	7, 432 8, 690 8, 690 7, 618 8, 737 8, 737 7, 741 8, 676 6, 128 6, 128	6,163 7,684 5,174 5,965	7,624 3,320 4,350	4,738 6,146
	Air- dry- ing loss.	4 6 2 8 0 9	9.6	23.1	21.0
	Oxy- gen.	42884 642 888 89 89 89 89 89 89 89 89 89 89 89 89	84.45 11.45 11.45	23.55	22.5
	Nitro-gen.	1.50 1.56 1.80 1.80 1.80 1.11 1.11 1.11 1.13	2422	101.10	32.88
Ultimate.	Car- bon.		75.27 93.85 64.23 74.05		
D	Hy- dro- gen.	44-64 44-6 4 5-4-12 5-26 21 5-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6	.37	3.15	2.84
	Sul- phur.	1191199999 999999999 5888898214 9852148824 8	1.888	489	3533
	Ash.	11. 18 11. 15 13. 00 13. 00 13. 00 15. 00 10. 05 10. 05 10. 09 10. 00 10. 00 10	19.80	30.77	15.93
nate.	Fixed car- bon.	6652 6673 6772 6772 6772 6772 6772 6772 677	77.44 96.56 75.38	96. 22 42. 54 55. 74	93.40 58.37 75.72
Proximate.	Vola- tile mat- ter.	8 898888 172 173888888888888888888888888888888888888	2433	8.5% 20.0%	9%51 8%51
	Mols- ture.		13.26	23.68	22.92
	Con- di- tion.	нимнимнименимениме	000-0	100-01	e − e e
Sample.	Kind.	< < 0 < < 0 ×	<b>A</b>	е	Ħ
, va	Lab- ora- tory No.	1994 1995 2154 4349 4350 4517		9330	9331
	Locality, bed, etc.	PENNSYLVANIA—Continued.  WESTMORELAND COUNTY—continued.  Ligonier, 3 miles north of, Ligonier mine, Pittsburgh bed (800 feet from drift mouth, room 3 off left but catry 4, 714-inch cut).  Same (850 feet from drift mouth, room 3 off right entry 6, 60-inch cut).  Same (mn of mine).  Same (run of mine).  Same (1,050 feet southwest of opening, 413-inch cut).  Same (1,050 feet southwest of opening, 413-inch cut).  Same (run of mine).  RHODE ISLAND.  NEWPORT COUNTY.	(heading, 1,150 feet south of south shaft, in 900-foot gallery, 500 feet down, vertically). Same (south slope, on 800-foot level, 1,200 feet south of main slope, a Middle, 4-foot heat).	Same (60 feet south of north shaft, 150 feet down vertically, 273-inch bed, weathered).	Same (900 feet north of north shaft at heading in gallery, 23-inch bed).

ANA	TIPES OF COMPS	IN IME ONLY	LED STATES.	100
# # # # # # # # # # # # # # # # # # #	\$ 3 3	785	285	786
	332		2N5	88 = 88 gg
7, 300 13, 98, 675 10, 98, 98, 90 10, 98, 98, 90 10, 99, 98, 90 10, 10, 10 10, 10 10, 10 10, 10 10, 10 10, 10 10 10, 10 10 10, 10 10 10 10 10 10 10 10 10 10 10 10 10 1	10,996 11,268 14,002 14,002 14,011 18,822 11,658 11,322 11,325 11,007	13,583 11,180 11,180 13,858 6,944	12,098	13, 514 13, 968 14, 992
7, 655 7, 7, 755 7, 755 7, 755 7, 755 7, 835 7, 835 7, 835	6, 25, 26, 26, 26, 26, 26, 26, 26, 26, 26, 26	3, 558 3, 558 3, 858 3, 858	6,721	7,508
14.8	2.0 9.1 4.0	19.7	32.3	1.9
17. 63 6. 86 18. 86 18. 86 15. 45 15. 45 14. 14 14. 14 17. 14 17. 14 17. 14	2.5.0 2.2.0 2.2.2	6.0		
2.23 0.00 0.12 0.00 0.13 0.00 0.00 0.00 0.00 0.00 0.00	71.72.22.2.17.17.17.17.17.17.17.17.17.17.17.17.17.	4		
47.88 56.90 91.39 91.39 91.39 92.53 62.53 94.80 62.09 94.80	75. 10 76. 95 95. 62 95. 72 95. 72 78. 65	86.		
2.1.2 2.1.2 2.1.2 2.2.3 1.2.4 2.3.3 2.3.3 2.3.4 2.3.3 2.3.4 3.4	06.5000	4.0		
242313888991183	82522222222222222222222222222222222222	33	38.0 05.88.0 0.48.0 0.48.0	282888
31.8 37.7 33.9 40.6 23.2 23.2 23.2 23.7	19.06 19.06 19.06 25.71 28.47 28.47	14, 41 17, 92 19, 33 19, 15	17, 47	6.6.61
945945955699 945956595699 8450040990984	773. 93.74. 661. 98 622. 59 74. 52		49.50 59.98 57.17 45.48 51.88	54.51 56.34 60.47 55.52 67.31
00000000000000000000000000000000000000	46.5 9946.69 948 688.8484.84	22, 22, 25, 26, 27, 27, 27, 27, 27, 27, 27, 27, 27, 27	33.03 40.02 25.21 42.19 48.12	35. 63 36. 83 36. 15 38. 15 38. 77
15.9	14 17 18 1	30,45	40.25	3. 25
	-887-888-88	- 00m-00m	NW -NW	-00-00
<b>A A A</b>	0 4 4 4	: < p	æ	4 4
9335	3216	7777	2001	2956
Same (north slope, 324 feet south and 70 feet east of landing, on main slope).  Same (south slope, 200 feet south of west end of cross-cut heading from 600-foot level of main bed, "Back bed").  Same (800-foot level, 250 feet south of main slope).  Same (800-foot level, 1,200 feet south of main slope).	Cransion (near Providence), Cranston mine, pit in outcrop (run of mine).  Same (pit in outcrop)	Some (pit in outerop).  SOUTH DAKOTA.  CORSON COUNTY.  Morristown, 12 miles southeast of: NW, 4 sec. 19, T.	2I N., R. 2I E., surface outerop, 35-inch cut. IIARDING COUNTY.  Cave Hills, sec. 19, T. 22 N., R. 6 E., outerop on Riley ranch, 9-foot bed, lower bench, 5-foot cut.  TENNESSEE.  ANDERSON COUNTY.	Oliver Springs (Roane County), 3 miles north of; Wind- rock No. 1 mine, Dean bed (1,300 feet north- east of drift mouth, 634-inch cut). Same (2,000 feet south of drift mouth, 564-inch cut).

Table of chemical analyses-Continued.

ige.	Page of this bulle- tin.		787	787	787	788
Reference.	Bul- letin t No. b	332	332 332 332 332 332 332 332 332 332 332	332 332	: 25 25 25 25 25 25 25 25 25 25 25 25 25	9 9
value.	British thermal units.	12, 578 13, 441 14, 960 15, 089	13,666 14,272 14,915	13,788 13,788 14,900 15,025 14,130	15, 197 13, 295 14, 008	13, 235 13, 235 13, 514 13, 921 14, 921
Calorific value.	Calo-	6, 988 7, 467 8, 311 8, 383	7,592 7,929 8,286	7, 249 7, 660 8, 278 7, 850		2,7,7,8,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9
	Air-dry-ing loss.	7.	8:1	3.2	3.2	1.3
	Oxy-gen.	12.36 7.13 8.03		12.33 7.98 8.63 8.72	11.53	8.30 10.23 10.23 10.23 10.23 10.23 10.23
	Nitro- gen.	1.67 1.67 1.88 1.88		1.82	1.75	86284
Ultimate.	Car-	70.16 74.95 83.44 84.43		72. 41 76. 52 82. 68 83. 63	73.54	84. 41. 42. 30. 42. 95. 93. 93. 93. 93. 93. 93. 93. 93. 93. 93
D	Hy- dro- gen.	5. 41 5. 59 5. 66		5.50	5.39 5.08 74	60.00 60.00
	Sul-	0.98 1.05 1.17	.93 1.01 80 48.	1.05 1.13 1.13 83	98.88.6.5.1.	1.72
	Ash.	9.53	4. 13 4. 31 2. 70 2. 82	7.05	2.38 2.46 6.81 7.18	5.06 6.81 7.01
mate.	Fixed carbon.	51.76 55.29 61.56	56.31 61.46 60.20	55. 69 55. 60 55. 60 55. 69	56.35 56.35 56.35 52.67 55.31	58.05 63.06 59.99 59.99 64.51
Proximate.	Vola- tile mat- ter.	32, 32 34, 53 38, 44	35. 31 36. 98 36. 98	33. 54 39. 44 37. 29	40.11 38.08 40.33 40.33 40.33 40.63	34.01 35.07 32.04 35.49
	Mois- ture.	6, 39	4. 25	5.38	3.19	3.03
8	Con- tion.	₩ Ø Ø &		2100410	<u>м</u> номеном	4-100-100
Sample.	Kind.	Ö	4 4	O A	Q A	4 4
	Lab- ora- tory No.	3058	2929	3040	2932	7498
	Locality, bed, etc.	TENNESSEE—Continued.  ANDERSON COUNTY—continued.  Oliver Springs (Roane County), Windrock No. 1 mine—Continued.  Same (run of mine)	Gatilif, Regal mine, Regal Block bed (500 feet south of drift mouth, 61-inch cut).  Same (1,050 feet south of drift mouth, 521-inch cut)	Same (run of mine)	foot cut). Same (675 feet south of opening, 43-inch cut) Same (run of mine)	Lafollette, Rex No. 2 mine, Rex bed (cross heading, 4,200 feet northwest, 4144-inch cut).  Same (4,000 feet west, right cross heading 6, 464-inch cut).

																	201
	780	789				790	790			790	790	:	162	3	167	791	
	332	2228	332		332	332	332	332		332	1882	332			330	3322	332
	13,804		12,569 13,207 14,956	10,100	10,264	14, 962 14, 182 14, 742	15, 400	12,514 13,021 15,320	10, 101	* * * * * * * * * * * * * * * * * * *	12,983	12, 602 12, 996 14, 981	15, 422		13,219		12,508 13,019 15,255 15,386
_	7,964	8,377	6,983 7,337 8,309		5,702	8,312 8,190	8, 592	6,952 7,234 8,511			7,213	8,77,90	8,568		7,344	0,400	6,940 7,233 8,475 8,548
	1.8	1.8	3.0		2.3	2.7	1.9	2.9	:	2.0	1.8	1.7	1.0	. (	.23	2.4	2.6
	0 0 0 0 0 0 0 0 0 0		7.40		3.83			8.5.0 6.70				6.52 6.52 6.52					8.90 5.65 6.61 6.70
-			11.1.1.2.88	1	1.10	09.7		1.30	1	0 0 0 0 1 0 0 1		1.31			* · · · · · · · · · · · · · · · · · · ·		1.29 1.34 1.57 1.59
			69. 22 72. 72 82. 36		59.17			70.04 72.88 85.75				69.26 71.42 82.34			: : : : : : : :		69. 97 72. 82 85. 34 86. 32
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		. 4. 4. 7. 4. 7. 4. 4. 7. 4. 4. 7. 4. 4. 7. 4. 4. 7. 4. 4. 7. 4. 4. 7. 4. 4. 7. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.		3.88			4.84 4.59 5.40				5.03					4.81 5.33 5.33
	1.28	1.99	1.11 1.58 1.66 1.88		06.6	28.28	1.08	1.19 .78 .81 .95		2.42	3.84	. 6. 6. 6. 2. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	2.53	70.7	57:5	. 2. 6. £	. 78 . 94 . 98 1. 15
	4.74	6.83	11.15	•	27.87	4. 68	6.16	14.43		9.08	10.13	12.85	11.69		9.21	8.17	14.09
			61.37 51.13 53.72 60.85	•				66.01 54.07 56.26 66.20				49.21 50.75 58.50					67. 52 54. 76 57. 00 66. 79
_			38. 63 32. 91 34. 57 39. 15					27. 92 28. 73 33. 80		34.73	36.37	34.91 36.00 41.50	35.98				32.48 27.23 28.34 33.21
	3.71	3.66	4.81		3.53	3.80	3.00	3.89		3,46	3.04	3.03	2.51		3.44	3.77	3.92
	-00	0 CI	ಬ-101014	4	-67	2-C1	0-01	m ← 01 cm ¬	4	-00	20mc	2 61 63	4-010	, ,	-010	2-62	თ <i>–</i> თ თ თ თ
	٧	V	D		C	٧	Y	0		4	4	Ö	4		4	4	Ö
	2907	2908	3016		3471	2977	2978	3102		2979	2980	3133	1619		2995	2996	3113
CLAIBORNE COUNTY.	Fork Ridge, No. 2 mine, Mingo or Raiston bed (4,000 feet northeast of slope, 481-inch cut).	Same (4,400 feet east of slope, 48}-inch cut)	Same (run of mine)	CUMBERLAND COUNTY.	Ozone, 24 miles south of; slack, through 14-inch bar screen.	Waldensia, 3 miles northwest of, Yellow Creek No. 1	Same (350 feet northeast of drift mouth, 4½-foot cut).	Same (run of mine)	FENTRESS COUNTY.	Wilder, Fentress mine, Wilder bed (2,000 feet north of drift mouth, 54½-inch cut).	Same (1,500 feet east of drift mouth, 463-inch cut).	Same (screened over 1-inch by 1-inch shaker screen).	Wilder mine, Wilder bed, room 1 on entry 3, 453-	ry.	Coalmont, 13 mine, Sewanee or Middle Sewanee bed (1,900 feet north of drift mouth, 3-foot cut).	Same (2,000 feet south of drift mouth, 32-foot cut).	Same (lump, over 2-inch screen, 20 tons)

Table of chemical analyses-Continued.

	02	Sample.			Proximate.	mate.			Q	Ultimate.				Calorifi	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro-gen.	Oxy- gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
TENNESSEE—Continued.  GRUNDY COUNTY—continued.																	
Coalmont, B mine—Continued. Same (slack, through 3-inch screen, 10 toas)	3114	Ö		5.68	25.36 26.89	50.41 53.44 66.52	18,55	0.74	5.02	64.58 68.47 85.23	1.20	9.91 5.16 6.42	4.7	6,378	11,480 12,172 15,162	332	
Same (washed slack, 14 tons)	3115	Ö	4-004	4.68	28.75 30.16 33.40	57.31 60.13 66.60	9.26	65 68 76	5.25 2.25 2.25 2.25	86.06 77.48 85.81 86.46	1.60 1.30 1.44 1.45	6.99 6.09 6.74 6.80	.c.	8,478 7,313 7,672 8,5498 8,544	15,260 13,163 13,810 15,296 15,379	332	
Orme, 1 mile north of Battle Creek mine, Battle Creek bed (2,200 feet northeast of opening, 65-inch cut). Sane (2,500 feet northwest of opening, 53-foot cut). MORGAN COUNTY.	3010	4 4		3.31	31.71 32.80 37.95 32.38 33.51 37.87	51.87 53.64 62.05 53.13 64.98	13.11 13.56 11.12 11.12	1.30 1.55 1.55 .65 .77					2.0	6,77 7,006 8,105	12, 193 12, 611 14, 589	88888888888888888888888888888888888888	792
Petros, Big Brushy Nos. 1 and 2 mines, Brushy Mountain bed (2,500 feet southeast of drift mouth, 314-inch cut).  Same (3,800 feet cast of drift mouth, 35-inch cut).	2958	4 4	-00-00	2.25	35.37 36.18 38.93 36.76	55.47 56.7 61.07 52.84 54.03	6.91 7.07 8.20 8.38	2000 00 00 00 00 00 00 00 00 00 00 00 00					1.3	7,695 7,872 8,471	13,851 14,170 15,248	25 25 25 25 25 25 25 25 25 25 25 25 25 2	793
Same (run of mino)	3050	D C	o⊣01004	5.59	33.62 35.61 39.72	52. 93 51. 03 60. 28	9.76	4.6.6.6. 82.4.8.8.	5.24 4.89 5.46 5.67	70.08 74.23 82.79 86.07	1.62	10.07 5.40 6.02 6.27	4. 5.	7, 135 7, 558 8, 429 8, 673	12,841 13,604 15,172 15,611	332	
Crawford, Crawford mine, Wilder seam, west side, 1,000 feet from drift, 594-inch cut.	1617	В	<b>⇔</b> 000	2.71	35.43 36.42 42.70	47.56 48.88 57.30	14.30	3.28					1				794

ANALYSI	ES OF COALS IN THE UNIT	ED STATES. 189
79 <b>4</b>	795	796
332 332 332 332 332 332 332 332 332 332	261 48 48 48 48	33 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15
13, 104 15, 151 16, 197 16, 197 12, 715 15, 745 15, 74	12, 250 10, 197 10, 198 13, 176 10, 197 10, 197 10, 197 10, 197	7, 132 11, 146 12, 598 11, 416 11, 416 12, 890 13, 034
7,7,8 7,7,8 8,7,7,9,8,4 4,06,4 17,8,75,3 17,8,4 17,	(c) 20 (c	6, 3, 962 192 192 193 193 193 193 193 193 193 193 193 193
1.9	14. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4	29.1 23.5 29.0 31.5
\$4000-400 \$288644	15.74 11.74 11.74 11.74 11.74 11.74	158.53 158.53 188.65 18
38248888	1.12	11.48
20.000	39.25 60.11 72.55 73.62	64.84 64.84 73.21 74.40
8554460 8554664460	6.93 4.70 5.76 7.76	6 6 53 5 12 5 12
86666644446 467666644446 467666644446	58862480544 6886888 768688888 7686888888888888888	1.25 1.15 1.25 1.15 1.25 1.15 1.15 1.15
10.76 11.09 11.16 11.15 13.42 13.78 13.78	10.84 16.08 10.75 10.75 11.20 17.16 17.03 24.92 18.75	7, 38 11, 53 11, 53 11, 43 11, 43 12, 34 12, 34 13, 76 13, 76 13, 76
25.55 25.55	29.25.25.25.25.25.25.25.25.25.25.25.25.25.	844872488844 8468548 8584848848 848818
33.97 39.75 39.75 39.75 39.75 39.75 39.75	5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	24.65.50 24.65.65 24.65.65 24.65.65 25.65 26.65
3.01	32. 58 33. 50 34. 70 32. 92	36. 01 31. 06 35. 86 35. 30
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3005 3006 3127 3128	1195 1196 1456 7331	2562 2563 2734 7271 7270
WHITE COUNTY.  CHITY No. 1 mine, Sewanee bed (2,100 feet north of drift mouth, 384-inch cut).  Same (1,900 feet north of drift mouth, 474-inch cut).  Same ("'special run of mine," over ‡-inch screen + 8 per cent slack).  Same ("'screened run of mine," over ‡-inch screen + 18 per cent slack).	TEXAS.  HOUSTON COUNTY.  Grockett, 11 miles south of, Wootters station, Wootters mine (room 17 off north entry 3, 899 feet from foot of shaft, 5-foot cut).  Same (main cuty, 600 feet from foot of shaft, 53-foot cut).  Same (over ½-inch bar screen)	All Annual COUNTY.  Same (500 feet east of shaft, 77-inch cut)  Same (lump, over 3-inch sereen)  Rockdale, 33 miles northeast of, Big Lump mine (720 feet north of opening, entry 6, 7-foot cut).  Same (1,020 feet northwest entry 8, 82-inch cut).

Table of chemical analyses-Continued.

Reference.	Page of this bulletin.	797	797	798
	Bul- letin No.	#	261 148 148 148 133 332 332 333 332 333	285
Calorific value.	British thermal units.	7,214 10,985 12,685	7, 396 12, 647 12, 647 11, 034 12, 452 12, 469 12, 469 11, 334 11, 334 11, 334 11, 334 12, 739 12, 739 12, 739 12, 739 13, 749 14, 749 17, 749	12,217 13,014 14,285
Calorif	Calo- ries.	4,008 6,103 7,047	4, 244 7, 026 6, 918 6, 918 6, 924 6, 924 6, 924 6, 924 7, 077 7, 120	6,787 7,230 7,936
	Air- dry- ing loss.	29.3	5. 8 2. 25 2. 25 25 25 25 25 25 25 25 25 25 25 25 25 2	3.5
	Oxy-gen.		18.28 09 19.20 19.20 19.85 19.85 19.85 19.85	
	Nitro-gen.		0.80 1.13 1.13 1.13 1.13 1.10 1.10 1.10 1.1	
Ultimate.	Car-		42. 52. 64. 12. 64. 12. 65. 65. 11. 65. 12. 65. 12. 73. 93. 73. 93.	
D	Hy- dro- gen.		6.77 6.73 6.79 6.84 6.84 6.84 6.84 6.94 6.94 6.94 6.94 6.94 6.94 6.94 6.9	
	Sul-	0. 95 1. 45 1. 67 97 1. 46 1. 72	######################################	. 56
	Ash.	8.80 13.40 10.06 15.13	1.1. 1.2. 2.50 1.1. 1.3. 2.50 1.1. 6.3. 2.50 1.0. 2	8.35
nate.	Fixed carbon.	30, 93 47, 10 54, 39 30, 38 45, 68	7.88.812.82.40.82.40.82.82.82.82.82.82.82.82.82.82.82.82.82.	45. 45 48. 41 53. 14
Proximate.	Volatile matter.	25.94 39.50 45.61 39.19 46.18	88384448888484844444444444444444444444	40. 07 42. 69 46. 86
	Mois-	34. 33	28. 86 31. 34 33. 71 33. 98 36. 80 36. 80	6. 13
	Con- di- tion.	H010H010		H08
Sample.	Kind.	< 4	4 4 0 0 4 4 0	В
02	Lab- ora- tory No.	7403	1241 1243 1597 1610 2635 2635 2717	2097
	Locality, bed, etc.	TEXAS—Continued.  ROBERTSON COUNTY.  Calvert, 6 miles west of; Calvert mine (room 4 off entry 1 sutth, 250 leet south of opening, Upper, 81+inch bed, 77-inch ent).  Same (room 8 off east entry north, 550 feet northeast of opening, 831-inch bed, 784-inch eut).  WOOD COUNTY.	Hoyt, No. 1 mine, south entry 2, 500 feet from mouth, 84-foot cuit).  No. 3 mine (foot of air shaft, 94-inch cut)  Same (run of mine)	Castlegate, sec. 2, T. 13 S., R. 9 E., Castlegate bed (east part of mine, 10-foot cut).

798	798	799	199	799	199	799	799		800		2008	800	801	801
285	285	285	285	22	285	285	328	368	285	332	285	285	285	285
12,681	; 51 52 52 50 50 50 50 50 50 50 50 50 50 50 50 50	13,811		12, 982 13, 590 14, 303			5,50	45,5	13, 25	400.4	14,			12, 162 13, 237 14, 125
7,045	6,789	7,673		7,912			7,150	67.61	7,914	7,306	8, 240			6,758 7,354 7,847
1.3	1.0	1.1	3, 1		1.4	2.0	7	1.1		8	1.3	1.5	2.4	3.9
				15.38 11.95 12.57			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		15.15 15.15					5
				1.35	:			1.07	1.25	1.38	1.54			
	* · · · · · · · · · · · · · · · · · · ·			25. 75 76. 12 80. 11					25.25 25 25.25 25 25 25 25 25 25 25 25 25 25 25 25 2					Bureau of Mines
				5.57	:				4221					Bureau
.51	55.	2,4,5,	87.5	<u> </u>	. 35	8 8 8 8	4.88	8.2.2	3333	3333	955	3.2.8.	25.5	
8.08	6.45	5.26	5.29	4.98	4.15	6.29		8 99 52		4.87 5.18	5.84	7.17	3.88	1 8.10 40.21 45.97 5.78 8.86 8.39 6.29 9.44 3 46.69 53.31 1.00
48. 45 50. 85 55. 32	52. 16	58.95 54.59 54.59	45.80 45.80 126 126	55.23 55.32 55.06					54.84 51.60 51.00		52. 75	53.52	52.94 55.72	53. 31 53. 31 50. 0ff
39.13	38.32	38.06 39.68	45.89	25.05.42 25.73 26.73					45.55					40.21 46.69 60rding
4. 72	5. 42	4.09	7.02	4. 47	3, 20	5.90	5.16	5.58	5.29	6.05	3.37	3. 43	4.98	8. 10 rator ac
- C1 C1	631	m 01	2-31	ಬ⊣ಚಬ	-8	100 H C	100 H 01	2010	150 616	o ← 61 co ·	4-00	2-01	2-010	32
В	2	m	B	m ·	д	4	<	0	д	0	B	m	В	B by m
2098	2193	2188	2542	10046	10044	352D	353D	3460	10045	3199	2189	2192	2190	2541
Same (west part of mine, 6-foot cut)	10 miles east of, sec. 3, T. 13 S., R. 11 E., in Coal Creek Canyon, Gibson prospect, 5-foot cut.	104 miles east of, sec. 10, T. 13 S., R. 11 E., in Coal Crock Canyon, Bean prospect, 98-inch bed,	Clear Creek, sec. 33, T. 13 S., R. 7 E., Clear Creek mine, 3,000 feet in, Clear Creek bed, 13 <sub>1</sub> ½-foot	Kenilworth, 4 miles east of Helper, Aberdeen mine, Book Cillis bed (3 places—main slope, 1,880 feet north; right slope, 1,880 feet north; fifth left slope, 1,500 feet north by 132 feet west,	Same (all parts of mine)a	Four Points mine, Lower bed (650 feet northwest of slone 154-inch cut)	Same (1,100 feet northwest of slope, 12-foot 64-inch cut).	Same (run of mine, 40 tons)	Royal Blue mine, Book Cliffs bed, 582 feet north by 175 feet west, 96-lnch cut.a	Price, Huntington Creek prospect, run of mine	Sunnyside, sec. 32, T. 14 S., R. 14 B., near mouth of Whitmore Canyon, No. 1 mine, Upper (70-	Sunnyside nines, upper and lower beds, composite sample.	12 miles northwest of, SE, 4 NW, 4 sec. 23, T. 13 S., R. 12 E, in Dugout Canyon, 94-foot bed (not	Winterquarters, N. 4 sec. 7, T. 13 S., R. 7 E., No. 1 2541 B mine, 6,000 feet in, Winterquarters bed, 16-foot cut.

Table of chemical analyses—Continued.

nce.	Page of this bulle- tin.		10%	803	805	805	805	803	803		<del>\$</del> 08	58
Reference.	Bul- No.		285	285	285	285		316	316	316	285	316
Calorific value.	British thermal units.									10,863 11,939 13,118	13, 169 13, 185 13, 844	14, 607 13, 030 13, 745 14, 686 14, 787
Calorifi	Calo- ries.									6,035 6,633 7,288	7,325 7,325 7,691	8,116 7,239 7,636 8,159 8,215
	Air-dry-lng loss.		2.9	φ.	2.3	3.5	3.9	2.3	3.5	4.1	1.0	2.9
	Oxy-gen.									22. 92 16. 39 18. 13	18. 24	15.32 11.28 12.06 12.18
	Nitro-gen.									1.25	1.52	1.29 1.36 1.45 1.45
Ultimate.	Car-									62. 22 68. 38 75. 14	75. 56	71. 22 75. 13 80. 28 81. 03
P	Hy- dro- gen.									4.97	4.68	5. 26 4. 94 5. 27 5. 32
	Sul-		0.83 .95	2.06 2.17 2.36	.33	£84.23	55.55	1.15	2009	2.452	74	8882
	Ash.		6.60	7.76	4.01	4.28	3.05	11.43	6.38	8.18	4.99	6.08
nate.	Fixed carbon.	,	48. 40 51. 52 55. 41	50. 42 53. 13 57. 86	46.91	51.66 46.09 50.35	52.82 47.02 50.97	52.57 50.24 52.74	59.93 50.44 55.92	50.17 51.03 56.08	52.09	57. 72 52. 69 55. 58 59. 39
Proximate	Volatile matter.		38.96 41.46 44.59	36. 71 38. 69 42. 14	48.89	48.34	47.18 42.41 45.98	47.43 33.58 35.26	40.07 33.39 37.01	39.83 34.93 38.93 38.93 38.93	38. 16	36.03 38.01 40.61
	Mois-		6.04	5.11	5.19	8.46	7.76	4.75	9.79	9.01	4.76	5.20
	Con- di- tion.		-000	-0100	0	n <b>⊢</b> €	100 H 00	818	m → 01	m → 01 m	4-0	100 H C1 C0 4
Sample.	Kind.		д	В	Д	В	B	В	B	Д	В	æ
702	Lab- ora- tory No.		2410	2386	2409	2387	2142	3957	4014	4013	2200	4015
	Locality, bed, etc.	UTAH—Continued.	Clear Creek (Carbon County), 5 miles southeast of: 12 miles east of Fairview (Sampete County), 8 2 co. 94 T 14 S R 7 E Hintierion	Emery, 6 miles southeast of, NE 4 800, 4 80c. 2, T. 23 S. R. 6 E. west of Muddy Creek Canyon, Description of the Control of th		Mount Pleasant (Sampele County), 12 miles east of:	bed (600 feet from entrance, 8-foot cut).	Woodside, 4mileseastof; Peterson prospect, weathered	13 miles north of; 8 miles south of Sunnyside	bed, 16-foot cut. Same (weathered, 16-foot cut)	14 miles north of; 8 miles northeast of Verde, sec.	144 doctor. Horse Canyon bed. 144 miles north of; 8 + miles north of; 8 + miles north heats of Verde, see. 4. T. 16 S., R. 14 E., west side of Horse Canyon, 400 feet from opening, cut 13 feet 5 from opening.

	70%	802	802	802		908	800	807	208	808	808	608	608	800
	316	316	316	316		316	341	316	341	316	316	341	316	341
		10,602	14, 25/				11,412	10,912	10, 874 12, 128	000 (01		10,942 12,514		9, 927 11, 569 13, 081
		6,289	(, 936				6,340	(2) (2)	6,738	90'5		6,079		6, 515 6, 427 7, 267
	1.9	2.3	2.5	4.5		1.7	1.4	24	1.8	2,3	5.0	1.6	5.4	2.8
		14. 97 9. 96 12. 50					11.19		8.97			212		23.37 12.64 14.18
		1.32	1.10				86.	F. I.	1.06	1.12		1.06		1.12
		59.10	(9.01				66.28		68.31	70.07		62. 13 71. 05 75. 18		55. 27 64. 41 72. 83
		5.01	0.01				4.80		5.13	4.04		5.67 4.88		5. 20 4. 23 4. 77
	255	3888	25 51 52	<b>4</b> 88		6.81 7.19 8.18	6.72	× 5 5 8 5 8 8 8	6.82	6.49 7.08			5.65.2	5.39 6.28 7.10
	18.04	19.02	10.97	4.16		11.50	13.04	13.94	9.62	8.70 9.61	5.36	5.49	9.47	9.92
		42.74 45.64 57.27	47.00 52.07	50.06 57.37 60.24		43. 44 45. 84 52. 17		2.4.4.2. 2.4.2.2.2.2.2.2.2.2.2.2.2.2.2.2		46.22 50.54 55.91			48.10 53.99	42. 50 49. 53 56. 00
		31.89 34.05 42.73	32.37	33.04 37.86 39.76		39.82 42.02 47.83		37.96 39.92 46.78		39. 85 44. 89 44. 89	38.34	4.66 4.66 8.66	35.58 40.99 46.01	33.39 38.91 44.00
	5.58	6.35	9. 57	12.74		5.24	4.93	4.92	10.35	8.64	13.35		13.20	14.19
	-01:	n → 01 m ·	4-010	o → 01 m		<b>⇔</b> 8189	-0:	ಬ್ಲರಾಬ	03 0	ಇ⊣ಣಣ	63:	2-01	o ← 01 co	-0160
	2	8	a	=		=	=	æ	m	m	m	m	n	g
	3945	3856	3857	3854		3761	5494	3760	5304	3762	3830	5307	3687	5305
GRAND COUNTY.	Green River, 10 miles northeast of; sec. 23, T. 20 S., R. 17 E., Black Baby mine, 20 feet in west	entry, 75-foot bed, 55-foot eut. Thompsons, 5 miles north of; T. 21 S., R. 20 E., Ballard mine, 691-inch bed, full bed cut.	Same (75 feet above Ballard mine, 11 feet in tunnel, 4g-foot cut).	84 miles north of, T. 20 S., R. 21 E., in Nash Can- yon, 14 miles northwest of Nash ranch, 48-footent.	IRON COUNTY.	Cedar City, 4 miles southeast of; sec. 31, T. 36 S., R. 10 W., west edge of Colob Plateau near top, altitude 8,700± feet, Corry mino, 43-inch bed,	Zamen eut. Same, 92-inch bed, 77-inch cut	7 miles east of, NW. 4 sec. 4, T. 37 S., R. 10 W. and South Fork Coal Croek Canyon, Wood and Taylor mine, near top of Colob Platten, altitude 8,900±, feet, 399 feet from mouth,	7 miles southeast of; NW, 4 sec. 36, T. 36 S., T. 10 W., on Coal Creek, Jones mine, 100 feet	8 miles southeast of, SE-3 see, 38, 71.36 S., R. 10 W., in Coal Creek Canyon, Jones and Bullock mine, altitude 7,200 foot, 55-inch bed, 463-	Kanarraville, a mics northeast of, see, 28, T. 37 S., R. I. W., near top at margin of Colob Plateau,	5 miles aast of; NW, 4 sec. 33, T. 37 S., R. 11 W., Kanarra mine, cut 8 feet 9 inches.	6 miles northeast of; 7 miles south of Cedar City, NW. 4 sec. 24, T. 37 S., R. 11 W., on Shirts Creek, west edge of Colob Plateau, Culver	Aline, autoua sydorece (125 recent and

Table of chemical analyses-Continued.

Fixed Ash. Sul- Hy- Car- Nitro Oxy- dry- carbon. gen. bon. gen. gen. gen. ries. 7.986.09 42.51 3.27
00 42.51
42.51
09 42.51 3.
60
-
0000
R. 13 W. (New Harmony mine, altitude 6,200

			13	74 277		5 01		O.LIA.	, 111								-	
	812	812		812	812	812	:	813	812		813	813	813	814	814	814	814	
	285	285	Ī	285	332	332	332				341	341	341	341	341	341	341	
	12,800			10,942	12,184	70,172		10,770	12, 370 12, 390 13, 390 150	40,400	10,366	10, 575	10,685	11,074	13,828 12,973	13, 919 11, 581 12, 676	11, 639 12, 740 13, 799	
	6,537			6,079	5,817 6,769	100 ()		5,980	7,430 5,905 6,884 7,310	, 040	5,759	6,650	6, 612	6,703	6,57	7,043	7, 078 7, 078 7, 666	
	1.8	œ		6.9	5.7	5.2	2.3	5.7	4.8	6 0 0 0 0	3.0	4.4	3.3	2.5	2.9	23	2.6	rdson.
								0 0 0	25.31 14.70	0.01	21.38	14.25.5	12.02.52	12.82	20.17	19.84	19.67	Richa
									1.09	7: 00	066.	26.1.	1.05	2888	3823	27.23	3898	by G. B
								0 0 0	61.40		57.81	59. 16 66. 97	66.94 66.87	66.49	65.28 11.41	76. 67 70. 16	70. 94 65. 10 71. 26 77. 18	Sample taken in 1907 by G. B. Richardson
									5.79	17 %			5.31 4.64			5.057	4.5.54 5.98 39	taken
	388	5.4.73		123	28242	2222	28.33	1.70	11.11.2	1:11	2.13	1.92		3233	25.23	1.33	3888	Sample
	6.14	13.39		4.45	6.26	5.26	5.85	5.4	5.0	:	12.86 14.20	9. 44	12.25	11.79	6.25	8.06	7.00	۵
-		50.94 52.07 60.33		50.73	246.53 24.46 34.46 34.46	41. 19 47. 81	43.19 49.45	53.00 46.5 54.6	57.5 44.8 52.1	t .00	44.94	50.37	44.85 49.96	45.73 49.85	57.13 48.33 53.00	56.90 47.21 51.68	52. 75 57. 13	
-		33.50		37.96	43.75 37.20 38.20 58.20 58.20	46.95 80.69 80.08	88.88 88.89 88.80 88.80	47.00 34.0 40.0	245.0 26.0 26.0 26.0	74.0							36. 16 39. 58 42. 87	
	8.07	2.17		13.92	14.07	13.86	12.66	14.9	14.2		9.43	11.66	10.22	8.21	8.83	8.64	8.65	
	-010	o → 01 00		-010	2-1010	0 03 0	20-0	10-0	es <del></del> es e	2	-00	n → 01	20-03	r2 ⊢ c3	es → e3	e-01	m → e3 m	,
	m	В		B	<	<	C	V	4		23	В	B	B	B	В	B	Lee.
	2141	2143		2408	3200	3201	3259	8065	8064		5515	5517	5518	5513	5510	5512	5500	W. T.
SANPETE COUNTY.	Sterling, 2 miles east of; sec. 35, T. 18 S., R. 2 E., Morrison mine, Sterling bod, 23-foot cut.	Wales, 2 miles west of; sec. 26, T. 15 S, R. 2 E., in Now Canyon, Wales mine, Wales bed, 3-foot cut.	SUMMIT COUNTY.	Coalville, 3 miles northeast of, sec. 3, T. 2 N., R. 5 E., Wasatch mine, Wasatch bed (100 feet from	Same (5,000 feet east of slope on 500-foot level, 101-foot cut).	Same (4.500 feet east of slope, on 400-foot level, 127-inch cut).	Same (slack through 11-inch screen)	Same (1,200 feet southwest of slope, 92-foot cut).	Same (1,800 feet north of slope, 101-foot cut)	UINTA COUNTY.	Vernal, 3 miles north of; NE. ‡ NW. ‡ sec. 2, T. 4 S., R. 21 E., Gibson mine, 86½-inch bed, 120 feet	in mine (lower 14 inches of 22-inch top bench). Same (middle bench, 421-inch cut)	Same (lower bench, 21-inch cut)	5 miles northwest of; lots 1 and 2, NW. 4 sec. 11, T. 4 S., R. 20 E., C. C. Rich mine, 58-inch	bed (2 lower benches, 13-inch cut). Same (2 upper benches, 274-inch cut)	7 miles northwest of; NW. 4 SW. 4 sec. 2, T. 4 S., R. 20 E., J. Rich mine, 72-lach bod (2 lower	benches, 17½-inch cut). Same (2 upper benches, 30½-inch cut)	a Sample taken in 1906 by W. T. Lee.

a Sample taken in 1906 by W. T. Lee.

Table of chemical analyses—Continued.

91	6	ANAL	YSES	OF CO	DALS	INT	HE	UNI	TED	ST	AŢĘ	S.		
	Reference.	Page of this bulletin.		815	815	815	3		816	9	010	816	816	
ı	Refer	Bul- letin No.		341	341	341 415	415		348		330	13,00	290	530
i	Calorific value.	British thermal units.		43,5	1 1 1 1 1 1 1 1 1 1	12,250	, E, 4,					13, 117	15,217	13,826 14,411 15,156 15,305
	Calorifi	Calo- ries.		6,346 6,915	6, 538 7, 156 7, 156	6,7,6,6,7,6 6,7,828 6,70	7,224					7,287	8, 454	7,681 8,006 8,420 8,503
		Air-dry-ing loss.		63	2.5	2.9			1.2	(	2.0	4.2	4.4	2.4
		Oxy-		18.41	17.52	19.25 12.81 14.40	12.63					6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0	10.92 7.62 8.01 8.12
		Nitro- gen.		1:00	11.02	11111	1.19		8 8 8 8 8 8 8 8 9 8 8 9 1 1 9					1.24 1.36 1.38
	Ultimate.	Car- bon.				62.79 68.59 77.05			0 1 0 0 0 0 0 0 0 0 0 0 0					76.59 79.83 83.97 85.09
	Ω	Hy- dro- gen.		5.50	25.27	4.68.39	5.05		9 1 2 0 1 2 0 0 1 0 0 1		* * *			5.32 5.34 5.41
		Sul-		1.26	1882	1.73	1.37		93.00		22.55	25.33		1.25
		Ash.		10.31	7.95 8.70	10.05	8.01		3.98		4.88 8.86	8.60	4.40	4.93
2006	nate.	Fixed carbon.		45.77	56. 19 46. 67 51. 09	55.96 47.17 51.53 57.89	47.02 52.13 56.67		63.68 65.12 67.88		59.24	51.77	60.06 55.54 59.43	62.37 56.28 58.66 61.70
	Proximate.	Vola- tile mat- ter.		35. 69	43.81 36.74 40.21	44.04 34.32 37.49 42.11	39.86 43.33		30, 13 30, 81 32, 12		34.21 35.90	34.43	39.94 33.51 35.86	37.63 34.93 36.41 38.30
		Mois- ture.		8.23	8.64	8.46	× 0.4		2.21		4. 72	5.69	6.55	4.06
3		Con- di- tion.			m −1 01 1	m − 63 m ,	- C1 C2		. <del></del> 0100			2-07	m N	<b>∞</b> +0004
1	Sample.	Kind.		д	m	m r	<b>A</b>		А		¥	Ą	¥	ت ت
	202	Lab- ora- tory No.		5754	5755	5511	5753		3827		2246	2268	2269	2420
		Locality, bed, etc.	UTAH—Continued.	Vernal—Continued.  54 miles northwest of, lot 10, SW. 4 sec. 2, T. 4 S., R. 20 E., Timothy mine, 63-inch bod (2)	lower benches, 174-inch cut). Same (2 upper benches, 33½-inch cut)	6 miles northwest of, NE. 4 SE. 4 sec. 3, T. 4 S., R. 20 E., Gray mine, 67-inch bed (465-inch cut).	Same (3}-foot cut)	VIRGINIA. DICKENSON COUNTY.	Olintwood, Chase & Damron mine, Clintwood, 63-foot bed, 150 feet from entry, 43-foot cut.	LEE COUNTY.	Crab Orchard, Morris prospect (29 feet from outcrop, entire bed of left rib of drift, 854-inch cut).	Wilson bed. Same (lower bench at face of drift, 174-inch cut).	Same (upper bench at face of drift, 573-inch cut).	Same (run of mine)

817	818	819	819	819	028	820 820			
290 836 290 836 290 836	250 236 290 290 290 290 290	290	341	341	341	222322	33.5	332	
13, 873 14, 436 15, 239 13, 932 14, 414 15, 299	15, 201	13, 939 14, 573 15, 264 15, 361 14, 134	15, 167	14, 918 12, 778 13, 495	13, 109 13, 871 14, 913	11,669	12,564	15, 593 11, 893 12, 859 15, 597	9,688
8,020 8,020 8,020 8,000 8,008	7,858 8,176 8,445	8,096 8,480 7,8534 8,852	7,424 2,426 4,769	8,288 7,099 7,497	8,285 8,285	6,483	8,635 6,645 8,611	8,663 7,144 8,665	5,382 5,495 8,306
5.0	1.5	2.0	2.1	3.1	3.1	3.1	7	7.1	1.6
77.1.137 7.56		7.78 8.15 8.21 11.51	9.09	13.57	10.04		3.40	4.0.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	5.17
22422		2884448	32.33	38.1.1.2	1.12		888	95.50	40.569.
777.02 79.69 84.58	90.44	76.99 80.49 84.31 77.98						90.50 69.05 74.66 90.56	
		74.0.0.0.0 20.00 20 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.0	26.22	. 4. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.	5.19		4.355	4.4.6.4.4 7.8.8.2.4.2 7.6.6.4.2	3.67
	252 344 352 352 352	87.83.87.9	3228	.75	1.34	1.06 1.06 1.06 1.06	3888	.85	47
1.93 2.07 5.06 5.27 5.58 5.77	2. 2. 51 3. 06 3. 18	4. 4. 83 8. 39 1. 39		8.80 9.29	6.61	17.64 18.28 21.94 22.61	18.03	16.23	33.15
58.26 63.83 63.83 56.96 55.95 61.42	56.88 60.55 60.55 60.55 62.51		86.83 86.83 88.83 88.83			67.79 70.26 85.98 64.14 66.11		65.96 71.32 86.50	58. 22 59. 44 89. 84
33.01 35.42 36.17 36.17 37.43 35.13 38.35 38.35	37.06 38.42 33.45 34.89 36.30		35.99 37.66			11.06 11.46 10.94 11.28		10.29 11.13 13.50	6.58 6.72 10.16
3.90	3. 55	3. 42	44.	5.31	5.49	3.51	4.80	7.52	2.05
	* H 01 00 H 101 00	1100410	100-01	n 01 m	- 01 m	-00-00	n − 01 m ·	4-0100	200
4 4 0	<b>4 4</b>	O A	ы	B	Д	4 4	Ö	O	Ö
2248	2324	2358	6238	6237	6239	4092	4287	4294	5938
Near; "big opening" on Wilson farm, 75 feet from outerop, (lower bench, 12-inch cut). McConnell bed. Same (upper bench, 613-inch cut).	Darby, Darby mine (901 feet from drift mouth, room 1 off third butt entry, 414-inch bed, 324-inch cut).  Same (1,423 feet from drift mouth, room 18 off first butt entry, 424-inch bed, 374-inch cut).	Same (lump, over 14-inch bar screen)  Darbyville, Black Mountain mine on Baley Trace, 100 feet from entrance No. 5 (Darbyv) bed 34-foot	Gin Creek opening, No. 9 bed, 564-inch cut	Left Fork Gin Creek prospect (No. 10 bed, 69-inch cut).	Same (No. 12 bed, 4½-foot cut)	Biacksburg, 10 miles west of, Poverty mine, "Big Seam" bed (750 feet south of opening, 694- inch cut). Same (765 feet south of opening, 594-inch cut)	Same (pea coal)	Same (slack, 10 tons)	Merrimac, "Big Vein," mine, semianthracite culm

Table of chemical analyses-Continued.

nce.	Page of this builto-tin.		821	822	822	822	823		823	823	824		824
Reference.	Bul- letin No.		316	316	316				431	431	431		
Calorific value.	British thermal units.			11,824	12, 796	14, 135	15, 460 13, 936 14, 260 15, 358		10, 490	15, 277 13, 745 14, 202	15, 091 13, 644 14, 086 15, 089		
Calorifi	Calo- ries.			6, 569	7, 109	7,853	8,589 7,742 7,922 8,532		5,828	7, 636 7, 890	8,7,7,8 8,7,7,580 8,383		
	Air- dry- ing loss.		1.8	∞ .	1.3	1.1	1.4		1.6	1.5	1.6		ςς (γ)
	Oxy- gen.					7,34	5.52		5.00	6.85	6.59 7.02 7.53		
	Nitro- gen.					1.53	1.53		1.08	399	1.53		
Ultimate.	Car-					78.59	85. 96 77. 91 79. 73 85. 87				84, 41 76, 24 78, 71 84, 31		
	Hy- dro- gen.					5.44	5.55 5.33 5.33 5.33 5.33 5.33 5.33 5.33		4.87	5.05	5. 21 5. 21 5. 58		
	Sul-		98.	1.45	25.1 25.0 26.0 26.0 26.0	1.88.	13882		1.01	3.53	0.88 .94		5300
	Ash.		5.80	5.69	7.32	6. 45	7.00		28.88 29.61	5.70	6. 44		3.8
mate.	Fixed carbon.		61.00	62.05	65. 92 59. 32	64, 13 57, 68 58, 93	63. 03 55. 03 56. 32 60. 67		34.90	50. 82 58. 06 59. 98	63. 73 57. 11 58. 96 63. 16		74.5
Proximate.	Vola- tile mat- ter.		32.11	31. 54 32. 15	32.40 33.18	35.87 33.75 34.48	36. 91 35. 69 36. 52 39. 33		33.78	33.03	36. 27 34. 39 36. 84		17.5 18.5 19.0
	Mois- ture.		2.79	1.90	2.36	2.12	2.28		2.44	3.21	3 14		2.
	Con- di- tion.		-00	2-010	200	n-01	200		-00	2-01	n - N n		-01co
Sample.	Kind.		В	В	a	В	Д		В	A	В		4
02	Lab- ora- tory No.		4057	3947	3942	10385	10387		10359	10358	10361		8633
	Locality, bed, etc.	VIRGINIA—Continued. RUSSELL COUNTY.	Dante, Lower Banner No. 2 mine, room 4 off left entry, Lower Banner bed, 34-foot cut.	Kennedy No. 4 mine, second cross heading 900 feet from entrance, Widow Kennedy bed, 33-foot	1 mile south of; Upper Banner No. 3 mine, sixth butt entry off main tunnel, Upper Banner	bed, 614-ner cut. I mile east of: Chinchfield mine, Lower Banner bed, main entry 150 feet from mouth (23-inch	1 mile east of, mine No. 3, Upper Banner bed (fourth right entry, 1,000 feet from mouth, 624-inch bed).	SCOTT COUNTY.	Adamar, 1 mile north of; about 50 feet from entrance, 52-inch cut.	Ka, 5 miles from; Milner prospect, Milner bed, about 500 feet from entrance, 64½-lnch cut.	14 miles from; Hagan prospect, Duncan bed, main entry about 125 feet from entrance, 30-inch cut.	TAZEWELL COUNTY.	Boissevain, Boissevain mine, Poenhontas No. 3 bed (main entry, 3,000 feet from shaft, 752-inch cut).

824	824	824	824	825	825	825		825	825	825	825	825	825	825	827	827
:				:	385	385	362									
				14,520	15, 347	14, 942	14, 672 14, 672	15,860 14,873 15,437	15, 901 14, 256 15, 149	15, 503		14,340	15, 860 15, 440	15, 920 14, 630 15, 160	15, 890	14,640 15,240 15,920
				8,065	0.8.8.9 0.5.26 0.5.26 0.5.26	0,00,00,0 0,00,00,00,00,00,00,00,00,00,0	8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8	8,8,8,8, 8,263 576	8,7,8,0 8,410 10,000	8,813		8, 435	8, 255	8,8,8,8 125 420 125 125 125 125 125 125 125 125 125 125	2, 500	8,135 8,465 8,840
3.7	3.5	2.9	3.7	3.5	3.5	2.0	1.1	3.2	5.4	3.4	2.9	4.8	3.2	3.0	3.0	oc ci
				6.72				888 888						4888 888		
				1.03	J. 12		1.02	1223	8223	1. 20			1.16	1.25	7	
				82.56 86.04	so. 03		83.14	89.88 84.65 87.86	8.88.88 8.88.88 8.88.88	23.72	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0		84. 70 88. 02	83.36 86.40	90, 33	
				4. 76				4.45						4. 4. 4. 5. 7.7.7		
888	8888	388	38	82,88	88.82	, 5 S	355	. 81 . 43 . 45	\$5.28	888	85.88	8888	588	79.	5888	888
6.0	02	4.0		4.31	3.55	3.12	5.86		4.24	9.9. 8.4.	00 to 00 to	4.4.	3.03	4.35	6. 6. 6. 4.	44.
72.7	\$ 35.50 \$ 25.50 \$ 25.5	27.0	73.1	27.75	74. 43	3.5.5.	75.34	81.44 76.27 79.15	21.53 77.15 15.15	80.78	76.0	29.50	81.0	76.8	83.5 83.5	76.5
17.0	17.5	17.5	17.0	12.50	18.52	12.55	17, 17	18, 56 17, 27 17, 93	18.26	15.5	16.5	16.0	15.5	16.5	15.5 16.0 16.5	15.5 16.0 17.0
4.3	4.2	3.6	4.4	4.0	4.50	2.92	1.63	3.65	5.89	4.2	3.7	5.6	3.8	3.5	3.6	3.9
H 63 6	o — ©1 €	-010	o-1010	9-101	2-010	0-0	20-0	m → m	m 01		2-020	0-010	2 – c	en − e1 e	n-010	-0100
A	4	4	4	:	В	В	C	4	4	4	4	4		4	4	4
8634	8737	8736	8732	8845	5269	5268	5456	7173	7172	8642	8641	8640	8750	8635	8636	8637
Same (east entry 1, 2,000 feet from shaft, 1073- inch cut).	Same (room 8, west entry 3, 1,500 feet from shaft, 99½-inch cut).	Same (east entry 3, 1,600 feet from shaft, 95-inch cut).	Same (west entry 1, 1,200 feet from shaft, 113-inch cut).	Same (composite of Nos. 8632-8634, 8736, and 8738).	Pocabontas, Baby Pocabontas mine, Pocabontas No. 3 bed (6,700 feet southwest of drift mouth,	Single (6,000 feet southwest of drift mouth, 1078-inch cut).	Same (run of mine, 4 cars)	Same (7,100 feet west of drift, cross 1, off diagonal entry on break-through from airway to	entry, opposite room 27, 1034-inch cut). Same (7,300 feet west of drift, 2,700 feet south, diagonal entry, 7-foot 103-inch cut).	Same (cross heading 1, 8,400 feet from drift mouth, 98½-inch cut).	Same (main diagonal air course, 8,400 feet from drift mouth, 963-inch cut).	Same (pillar, cross entry 8, 5,600 feet from drift mouth, 94-inch cut).	Same (composite of Nos. 8641 and 8642)	East Pocahontas mine, Pocahontas No. 3 bed, pillar, main entry, 2,500 feet from drift mouth,	In the west of; West Pocahontas mine, Pocahontas No. 3 bed (right entry 8, off Norton alreourse, 24 miles southwest of drift mouth, 933-inch	eut). Same (pillar, room 14, Kingston entry, 10,500 feet from drift mouth, 1013-inch cut).

Table of chemical analyses-Continued.

Reference.	Page of this builton tin.		827	827	827	827	8:27	827	827	828	828	
Refer	Bul- letin No.				:					332	## ## ## ## ## ## ## ## ## ## ## ## ##	32 23
Calorifle value.	British thermal units.				14,330	15, 780		14,740	15,910 14,770 15,310	15,880	14, 536	15,752 13,264 14,053 15,682 15,851
Calorif	Calo- ries.				7,960	8,765		8,190	8,8,8 8,83 8,83 8,83 8,83 8,83 8,83 8,8	8,820	8, 131	8,712 8,712 8,808 8,806
	Air- dry- ing loss.	1	3.2	4.3	4.7	2.9	2.9	3.5	2.9	4.2	1.9	5.0
	Oxy- gen.	1						2.72	61.00 62.53 84	2.56		9.61 5.45 5.52
	Nitro- gen.							1.21	888	1.29		1.26
Ultimate.	Car- bon.							84.29 87.91	90.93 84.40 87.48	90.71		73.35 77.71 86.71 87.97
	Hy- dro- gen.							4.97	4.77	4.71		4444 8488
	Sul-		9.9	888	888	888	222	588	332	1.70	383	1.48
	Ash.		ಕ್ಕಾರ ಕ್ರಾಂಗ್ರೆ	3.1	4.4	2.2	8.6	3.18	3.43	4.62	4.48	9.79
mate.	Fixed carbon.		76.2	82.0 76.1 79.9	74.7	87.8.2	84.0 77.3 80.1	75.2	87.5. 80.0 90.0	84.0 66.53 68.61	72.04 68.45 70.28	73.67 61.52 65.18 72.73
Proximate.	Vola- tile mat- ter.		17.0	18.0 16.0 17.0	17.5 16.0 16.5	17.5	16.0	16.5	17.5 15.0 15.5	25.82 26.63	27.96 24.47 25.12	27.23 27.24 27.24 27.24
	Mois-		3.7	4.9	5.3	3.4	3.4	1.4	3.5	3.03	2.60	5.62
	Con- di- tion.		- 0	en − 01	e = 01:	m – 01	m → m	2-01	m — €	e - 61	ಣ್ಣಣ	<b>ಬ</b> ⊣ರ1224
Sample.	Kind.		4	4	4	4	4			4	<	Ö
2	Lab- ora- tory No.		8613	8614	8615	8638	8639	8745	8749	430-4	4305	4573
	Locality, bed, etc.	VIRGINIA—Continued.	Pocahontas, West Pocahontas mino-Continued. Same (tight air course of oil Newyort News entry. 2 miles from drift month, 74-foot ent.)	Same (entry 3 off Newport News entry, 2 miles from drift mouth, 944-inch cut).	Same (pillar in haufway off Salem entry, 714-inch cut).	Same (pillar, Jed entry, 11,000 feet from drift mouth, 1004-inch cut).	Same (pillar, left 2nd St. Paul entry, 900 feet from drift mouth, 1014-inch cut).	Same (composite of Nos. 8613, 8614, and 8636)	Same (composite of Nos. 8638 and 8639)	Richlands, 5 miles northwest of; Richlands mine, No. 4 bed (2,000 feet southesst of opening, 663-inch	cut). Same (1,600 feet east of opening, 49-inch cut)	Same (run of mine)

			111	11113	LOLLO		00111		., _		. 0111		2				201
	88	830	088	830	830		831	831			83.5		82.5	8833	833	833	833
		•	:	336	2028	290	362	362			474 260		474	474	474	474	474
	14, 252	14,209	13,994	14,945	600,61	14, 470	12,449	15, 242 12, 413 12, 803	15, 135		10, 487 11, 815 13, 765		8,015	11,063	10,733	14,508 10,384 11,369	10, 764 11, 611 14, 330
	7,918	2,7,8,0 1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	7,774	0,8,8,0 0,00 0,00 0,00 0,00 0,00 0,00 0	6, 100	8, 292	8, 741 6, 916 7, 157	8,468 6,896 7,113	8,409		5,826 6,564 17,647:		5,180	6,146	8,000 8,000	6,700	5, 979 5, 980 6, 451 7, 961
	1.5	1.9	∞	1.6	1.7	2.2	2.2	1.8			3.4		12.6	3.6		7.6	4.
			6.24			7.74	5.48				18.76 9.87 11.49			14.25	5883	16.88	15.79 10.04 12.89
	1.56	1.58	1.50	3 : :		1.64	1.73				1.01			1.47	11.2	1322	1.55
	81.71	80.01 82.75	77.85			82.88					56.70 63.88 74.42		: :	69.12	59.35 62.44	80.23 57.31 62.75	29.78 29.42 79.11
			5,500			5.17					5.97 5.33 6.21			5.10		6.21 4.62	. 6. 4. 6. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.
	55.55	88.8	89.7.	S. S. S. S.	22.22	3,5,6,8	1.18	1.24	1.51		5.10		54.85	688	24.6	5.4.2	2884
	5.51	3.89	6.61	4.49	4.13	4.48	14.96	14.94			12.57 14.16		33.5	18.43	21.08	19.03	17.59
			58.27 59.56				53.09	65.00 54.17 55.88	.90°99		36.20 40.79 47.52		51.6	42.69	40.97	55.38 42.15 46.15	41.79 45.09 55.65
			33.10					35.00 27.84 28.71			39.99 45.05 52.48		200	35.82	3.3.28 3.28 3.29 3.29	33.05	33.32 35.94 44.35
	2.48	3.31	2.16	2.70	2.91	3.05	3.37	3.05			11.24		14.1	5.06	4.94	8.67	7.30
	-010	0 100 100	0-01	) C1 C	2-1010	2400	o 4	20 m	n		40.60		-010	2-03	m = 63 i	,	m-0100
	В	B,	я	٧	4	C	Д	В			В		В	В	B	m	æ
	10386	10390	10388	2281	2282	2382	5217	5235			10030		9111	9109	9110	9112	9268
WISE COUNTY.	Georgel, Swansen mine, Upper Banner bed, room 21 off swansen fronty west, 2,600 feet from out-	Norton, 4 mile cast of; No. 4 mine.	Stonega, Stonega mine, Imboden bed, No. 11 heading off fifth left face, 60-inch cut.	Toms Creek (Herald post office), Coburn mine (3,000 feet northeast of drift mouth, east heading 17,	Same (2000 feet northeast of drift mouth, room 3, west heading 11, 794-inch cut).	Same (lump, over 3½-inch bar screen)	Virginia City, Virginia City No. 1 mine "Jaw Bone" bed (2,400 feet northwest of opening, 974-inch	Same (3,200 feet northwest of opening, 801-inch eut).	WASHINGTON.	CLALLAM COUNTY.	Clallam, 4 miles east of, on seashore, Fuca mine, 100 feet up slope, 400 feet from mouth of gangway, 23-nch cut.	KING COUNTY.	Barneston, S.E. 4 NW. 4 sec. 12, T. 22 N., R. 7 E., prospect entry, 10 feet in, 564-inch bed, 504-inch	Bayne, NW. 4 NW. 4 sec. 22, T. 21 N., R. 7 E., Bayne mine 55 feet above gangway, No. 5 bed, (574-	Same cut). Same (Viv. 3 bed, 47-inch cut, face of south gangway).	Same (No. 1 bed, north side main rock tunnel, 70-inch cut).	NE. ‡ NW. ‡ 86c. 22, T. 21 N., R. 7 E., drift lower 2 feet of No. 5 bed (9 feet from entrance).

Table of chemical analyses—Continued.

							0 2.12.						
Reference.	Page of this bulletim.		255	833	833	835	835	835	835	835	835	835	835
	Bul- letin No.		474	474	474	474	474	47.4	474	474	474	474	474
Calorifie value.	British thermal units.						11, 963 11, 963 14, 602	11,590	10,409	12,2; 18,2; 18,8; 18,8;	12,069		
	Calo-		6,971	8, 177 5, 466 6, 220	7, 4, 4, 7, 420 1, 7, 7, 801	6,949	6, 646 7, 006 8, 112	6, 439	6,0,0,0 8,23,8 8,23,8	, 2, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5,	6, 705	0,000	
Air-day-ing loss.			3.3	5.5	. 5.	3.5	÷ 5	2.5	2.8	2.1	2.1	1.8	1.6
Ultimate.	Oxy-gen.		14.04	10, 44 23, 19 14, 14	16.61		13.6 19.6 10.93	9.97	14.49	12.87	14.15	00.11	0 0
	Nitro-gen.		1.72	1.38	1.84	1.15	11.12	1.35	8888	228	1.18	00.1	
	Car-		69.01	80.94 56.76 64.59	75.81	59.59	86.33 80.93 80.93	62.12	57.00	35.83 18.83	55.55	000.11	
	Hy- dro- gen.		5.32	5.88	5.13		5.07 5.86 5.86 5.86	5.20	0.4.4.7 0.9.20	3883	5.04. 18188	60.0	
	Sul-		0.63	279	1.37	94.41	22. 22. 29. 88.	57.	5000	85128	1.24	18.5	7.6
Proximate.	Ash.		9.50	13.02	33. 57 36. 29	19.35	13. 63 13. 63	14.51 15.33	21.80	12. 42	11.65	17.23	6.63
	Fixed carbon.		48.29	56. 64 43. 55 49. 56	58.18 35.62 38.51	36.45	58.24 47.54 50.11 58.02	47.11	43.25	50.93 50.91 50.91	55.55 51.51 51.51	45.47	52.61
	Vola- tile mat- ter.		36.98 39.25	43.36 31.31 35.63	25.23 25.33 10 10 10 10 10 10 10 10 10 10 10 10 10	33.1.63	34.40 34.40 36.26 41.98	33.03	33.67	36.05	36.22	33.14	36,73
	Mods- ture.		5.78	12.12	7.50	6.02	5.13	5.35	5.65	4.77	5.06	4.16	4.04
Sample.	Con- di- tion.		÷61	m m	co — 01 c	n-01	m 01 m	-01	2-010	20-01:	200	o 01	es es
	Kind.		E	æ	<b>E</b>	<b>A</b>	æ	В	B	B	<b>£</b>	B	B
	Lab- ora- tory No.		9269	9275	9483	9488	9479	9480	9481	9478	9475	9477	9476
	Locality, bed, etc.		Bayne, Bayne mine—Continued. Same (15 feet from entrance, lower 2 feet)	Same (at entrance, weathered)	NW. I sec. 22, T. 21 N., R. 7 E., prospect, highest bed on hill, surface exposure, 23-inch bed,	NE. 4 N. 1 sec. out. 72 feet in, 664-inch bed, 614-inch cut.	4 mile northwest of SE. 4 sec. 16, T. 21 N., R. 7 E., Occidental mine (550 feet from entrance to first water level, No. 1 bed, 704 inches, 67-inch	Same (310 feet from entrance to gangway, old No. 2 bed, 32 feet, 401-inch cut).	Samo (No. 6 bed, 43 inches, 381-inch cut, 112 feet from surface).	Same (old No. 3 bed, 100 feet above first level, 604 inches, 43-foot cut).	Same (old No. 3 bed, 660 feet up dip, 612 inches, 571-inch cut).	Same (200 feet down slope and 30 feet to the west, new mine, No. 14 bed, 701-inch cut).	Same (new mine, No. 14 bed, 1½-foot cut)

835	837	837	837	838	839	830	839	830	840	840	841	841	845	842	842
474	474	474	474	474	474	474	474	474	474	474	474	474	474	474	474
	12,568		12,847	12, 784 13, 334	14, 947 10, 938 11, 630	12, 732	11, 732 11, 732 12, 749 14, 026				11, 673 11, 673 12, 656 14, 051	12, 326	10,414	13, 423	13, 846 10, 325 11, 776 13, 403
	8,168 6,982 7,291		7, 524			7,074 7,413	6,518 7,792 7,792	6,945	7,300	8,060 6,337 6,746	6, 485 7, 031 7, 806	6,848	5, 786	7, 463 6, 505 6, 505	7, 592
1.7	2.3	1.5	3.1	1.9	2.2	3.1	6.0	4.8	3.2	4; c3	5.4	4.6	9.9	4.6	7.5
	05.65						19.09	18.92	11.36	116.10	19.42				25.25.5 25.5 25.5 25.5 25.5 25.5 25.5 25.5 25.5 25.5 25.5 25.5
1.70	1.47	1.06	1.14	388	25.23	3528	2.11.2	1.92	1.58	777	1.38				1.38
	20.00 10.00 10.00 10.00						70.79	68. 25 73. 68	72. 41	62.38	64. 07 69. 46 77. 11				75.40 65.75 65.86 75.47
	6.00						5.60				5.48				5.037
26.53	83.4.5		388	25.4	24.03	365	24.65.45	1.38	14.6	1999	44.	1.35		4.8.4.	1.02
12.09	11.13	9.21	8.10	10.79	18.92	12.24	8.38	44	4.4	14. 20	9.16	5.34	10.41		11.16
							54.95 54.95 54.94				45.10 45.10 54.29				47. 95 39. 76 45. 35 51. 96
							37. 69 37. 69 40. 96 45. 06	39.5			45. 71 45. 71				36. 76 41. 92 48. 04
3.97	4.23	3.81	5.13	4.13	5.94	4.57	7.98	7.4	4.9	6.07	7.77	6.75	12.05	9.27	12.32
e − e31	0-010	m-010	m-010	n-010	m → 01 c	o 01 0	m + 01 m	-610	2-03	n → c1 c	9-0100	-010	2 63	es → es e	2000
B	m	А	A	Я	Ħ	m	B	М	B	д	В	g	д	B	я
9491	9485	9486	9489	9492	9294	9278	9114	9105	9104	9107	9108	9106	9170	9171	9169
Same (in new mine, composite of Nos. 9476-7).	# mile northeast of; SE. 4 sec. 15, T. 21 N., R. 7 E., Carbon mine (No. 1 bed, 4-foot cut).	Same (No. 1 bed, spherical nodules)	Samo (No. 2 bod, 324-inch cut)	Same (composite of Nos. 9485 and 9486)	1 mile south of; see. 28, T. 21 N., R. 7 E., Euroka (abandoned) mine, 174 feet in, 584-inch cut.	A District of the	Black Djamond, 4 mile cast of, NW, 4 SE, 4 sec. 14, T. 21 N., R. 6 E., No. 14 mine (level 8, north gangway, Upper McKay a 49-foot bed, 34-foot	Same (north level 8, 70 feet from gangway, McKay bed, 634 inches, 634-inch cut).		Way, Mckay bed, 44-100 cut). Same (Upper McKay bed, 44 feet, 524-inch cut).	1 mile northwest of; SW. 4 sec. 11, T. 21 N., R. 6 E., Morgan mine (level 6, 15 feet above north gangway, Upper McKay bed, 564 inches, 544-	Same (evel 6, 12 feet above north gangway, 6-foot cut), McKay bed.	, R. 5 E.,	Bagley No. I bed, 5 fret, 43-foot cut). Same (water level 1, Bagley No. 2 bed, upper bench, 31 inches, 233-inch cut).	Same (water level 1, Bagley No. 2 bed, lower bench, 49 inches, 48-inch cut).

Also known as Little McKay bed.

Table of chemical analyses-Continued.

ence.	Page of this bulle- tin.		842	843	842	842	842	842	844	844	845	845
Reference.	Bul- letin No.		474	474	474	474	474	474	474	474	474	474
Calorific value.	British thermal units.		9, 965 11, 631 13, 480	10, 420	10, 368 11, 896	11, 461	10,015	10,235	9, 529 10, 120 14, 058	10,048	14, 252 9, 887 11, 329	13, 219 10, 728 11, 232 14, 547
Calorifi	Calo-		5, 536 6, 462 7, 489	5, 789	5,760	6, 535 7, 535 7, 535	6,505	5,686	5, 294 5, 622 7, 810	5, 582	7, 918 5, 493 6, 294	5, 344 5, 960 6, 240 8, 082
	Air- dry- ing loss.		9.7	9.7	7.1	7.2	8.6	S. O	3,4	3.4	6.2	2.2
	Oxy-gen.		24. 60 13. 84 16. 04	25.68	13.11	22.99	25.23	25.52	14.28 9.65 13.40			12.41 8.82 11.42
	Nitro-		1.25 1.46 1.69	1.05	1288	1.35	1.26	1.34	1.38			95
Ultimate.	Car-		56. 12 65. 51 75. 93						52.77 56.04 77.86			59. 23 62. 01 80. 39
9	Hy- dro- gen.		5.84 5.75	4.99	98.02	4.96	08.4 08.3 08.3	5.03	6.13			4.91
	Sul-		0.44	.42	4588	25.83	38.4.9	37.	54.69	.69	1.02	1.19
	Ash.		11.75	7.37	10.48	12. 74 14. 66	11.30	8.26 9.70	26.38 28.02	23.48	12.48	22.77
nate.	Fixed car-bon.		42.38 49.47 57.34	45.65	46.90 46.90 87	45. 43	50.8	43.65 51.24	36.46 38.72 53.79	40.76	57.80 43.73 50.11	58. 47 39. 67 41. 54
Proximate.	Vola- tile mat- ter.		31.54 36.81 42.66	32.53	41.60 41.07	34. 69 39. 91	36.0	33.28	45. 20 33. 26 46. 21	29, 75	42. 20 31. 06 35. 59	41. 53 34. 07 35. 67
	Mois- ture.		14, 33	14.45	12.86	13.07	14.5	14.81	5.84	6.01	12.73	4.49
	Con- di- tion.		-0700	-101	m-010	20-03	20-03	2-1010	n-0100	-8	<b>∞</b> ⊣α	co co c
Sample.	Kind.		Д	B	B	A	B	д	А	В	В	Д
σ <u>2</u>	Lab- ora- tory No.		9163	9164	9165	9916	9168	9167	9286	9474	9263	9264
	Locality, bed, etc.	WASHINGTON-Continued.  KING COUNTY-continued.	Coal Creek—Continued. SE, § SE, § see. 25, T. 24 N., R. 5 E., Ford mine, east end of air course it above gengway. 5,400 feet east of the slope (Muldoon bed, 624-inch	cut). Same (level 1 gangway, 700 feet east of cross tunnel, No. 3 bed, lower bench, 21½-inch cut).	Same (level 1 gangway, 1,400 feet west of slope, Muldoon (6-foot 1-inch) bed, 65-inch cut).	Same (level 1 gangway, 5,750 feet west of slope, Muldoon (642-inch) bed, 56-inch cut).	Same (level 1 gangway, 700 feet east of cross tunnel, No. 3 (554-inch) bed, upper bench,	Same (level 1 gangway, 650 feet east of cross tunnel, No. 4 (4%-foot) bed, 4½-foot cut).	Cumberland, I mile south of, SW. 4 sec. 28, T. 21 N., R. 7 E., Independent mine, 18 feet in, at foot of slope (upper part of lower bench of bed, 41-	inch cut). Same (upper bench of bed, 41-inch cut)	1 mile southeast of; SE. 4 sec. 28, T. 21 N., R. 7 E., Sunset mine (30 feet down die from surface.	No. 1 bed, 564-inch cut). Same (about 1,450 feet from entrance to gangway, No. 2 (34-foot) bed, 364-inch cut).

									,						
845	846	846	846	847	847	847	847	848	848	848	849	840	648	850	850
474	474	474	474	474	474	474	474	474	474	474	474	474	474	474	474
				14, 454 10, 822 11, 448 14, 722							13, 950 10, 040 11, 700 13, 550	9,135	13, 320 9, 079 11, 077	13, 374 9, 810 11, 940	13, 460 9, 956 11, 722 13, 529
6, 491	8, 109 4, 439 1, 670	7,027	6, 166	8, 030 6, 360 8, 179	6,773	, 6, 6, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	6,652 6,652 6,652	6,660	7, 352	6,345 6,345 1,845	7,750 5,575 6,500 7,525			7, 430 5, 450 6, 635	7, 480 5, 531 6, 512 7, 516
2.8	2.6	2.6	3.3	2.8	2.7	4.0	10.9	7.1	2.9	4.9	6.1	3.8	8.5	8.0	6.6
8.22				12. 14 7. 72 9. 93	13.51	11.14					14. 14 24. 45 13. 75 15. 90		26.82 13.16		25. 21 13. 92 16. 07
1.01	1.20			1.04	1.65	1. 98			1.63	1.69	11.196	1.10	11.38	1.52	1.09
63.79				59. 49 62. 93 80. 93	66.81						77. 57 56. 70 66. 11 76. 51		51.74		55. 58 65. 43 75. 52
2.13				5. 01 5. 01 5. 98	5.35						5.4.89		5.00 4.82 82		5.65
2.55	34.45	24.63	38.83	685.4	.55	388	82.38	18:25	4.8.25	55.55	3844	.57	. 38.7	35.24	1.322
15.01	38.54	8.80	15.99	21.03	12.16	26.33	8.04 9.81	9.09	3.66	10.8	11.66	17.7	14.08	9.3	11.35
				41. 20 43. 59 56. 06							59. 00 51. 00 59. 12				60.0 44.23 52.07 60.10
				32.30 34.17 43.94							30.29 35.32 40.88				40.0 29.36 34.57 39.90
5.56	4.94	5.24	7.23	5. 47	4.80	6.18	18.08	14.26	6.10	7.3	14. 23	13.8	18.03	17.9	15.06
636	2-1010	0-010	2-010	2000	-80	21010	2-101	211010	2100	2-010	200	-22	20-0	~ ~ ~	m → 01 m
м	Д	B	g	р	Д	щ	щ	щ	m	В	д	В	g	A	m.
9265	9276	9293	10512	9287	9284	9285	9323	9487	9484	9103	8544	8545	9883	8542	8543
Same (about 1,450 feet from entrance to gangway, No. 3 (44½-inch) bed, 27½-inch cut).	Same (30 feet from entrance to tunnel, No. 7 (724-inch) bed, 70-inch cut).	1 mile west of, NE. 4 sec. 29, T. 21 N., R. 7 E., Rose-Marshall mine, from lumps under cover,	Same (Solo feet down slope from surface, left side, 73-inch cut).	Sarve, SE. 4 NW. 4 sec. 28, T. 21 N., B. 7 E., Naval mine (crossent 1 above water-level gangway, 1446et north of rock tunnel, No. 4 had 30 traches Salnah out)	vater-level c tunnel, N	zarouc cut.). Same (position and bed same as No. 9284, upper bench, 19-inch cut).	Danville Junction, SW 4 sec. 24, T. 22 N., R. 6 E., Danville mine, 20 feet southwest, 71½-inch cut.	Franklin, sec. 19, T. 21 N., R. 7 E., surface prospect, Gem (?) bed, 321-inch cut.	Sec. 19, T. 21 N., R. 7 E., surface exposure, McKay bed, 512-inch cut.	mine, Gem bed, 10 feet up chute 9, 42½-inch	Grand Ridge, 4 mile north of, SE. 4 NW. 4 sec. 26, T. 24 N., R. 6 E., Grand Ridge mine (220 feet north of rock tunnel, No. 1 bed, 834 inches, 79-inch	Same (north end of level 1, near rock tunnel, No. 2 bed, 4-foot cut).	Same (washed coal)	NE.	Slope, No. 4 bed, 59 inches, 45-foot cut). Same (688 feet in, No. 5 bed, 545 inches, 47-inch cut).

Table of chemical analyses-Continued.

ence.	Page of this bulletin.		850	850	851	851	851	852	852	853	853	853
Reference.	Bul- letin No.		474	474	474	474	474	474	474	474	474	474
Calorific value.	British thermal units.		9,864 11,263 13,797	10,120	11,312	9,709	12,154	9,068	8,951 9,364	4,886 5,162	11,394	10,264 10,264 11,736 13,954
Calorif	Calo- ries.		5, 480 6, 257 7, 665	5,625	5, 184 6, 284 7, 284	5,394	6,797 6,752 7,535	× 5,038	202,073	2,711	6,330	8,129 5,702 6,520 7,752
	Air-dry-ing loss.		4.3	5.3	9.7	9.7	12.3	2.9	2.51	4.0	8.9	8.5
	Oxy- gen.			21.86	27.82 14.86	8	25. 14 14. 63					
	Nitro- gen.			1.11	1111	3 : :	1.32					
Ultimate	Car-			55. 68 63. 83	63.17	* : :	58.39 68.01	3				
n	Hy- dro- gen.			5.56	4.78.75	3	5.80	3				
	Sul-		1.61	89.	45.54.	65.	3.4.3.	388	38.23	33.30	253.	27.33
	Ash.		16.09	15.11	12.77 15.48	22. 41 25. 57	8.92	32. 42 34. 04	33.35	56.68 59.96	10.75	13.91 15.90
nate.	Fixed car-		41.82 47.76 58.50	50.2	38. 55 46. 73	34.83	53.39 47.06 54.82	39.15 41.11	38.98	32.30	50.47	64.82 45.54 52.07
Proximate	Volatile matter.		29. 68 33. 87 41. 50	32.5	31.17	34. 69	29.87 34.79	24.85	24.98	7.32	27.39 30.91	35.18 32.03 38.03
	Mois-		12. 41	12.8	17.51	12.35	14.15	4.76	4.41	5.48	11.39	12.54
	Con- di- tion.		- C3 C3	-22	n ⊢ 01 c	2-12	n = c3 c	o ⊢ 03 0	2-01	2-01	20 H C	co → co c
Sample.	Kind.		Д	д	P	Я	В	ф	В	м	д	В
02	Lab- ora- tory No.		8547	8548	*9291	*9115	*9113	9482	9288	8546	9290	9289
	Locality, bed, etc.	WASHINGTON—Continued. KING COUNTY—continued.	Issaquah—Continued.  13 miles southwest of: SW. 2 SE. 2 sec. 32, T. 24N.,  14 miles southwest of: SW. 2 SE. 4 sec. 32, T. 24N.,  15 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  16 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  17 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  18 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  19 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  19 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  10 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  11 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  12 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  13 miles southwest of: SW. 3 SE. 4 sec. 32, T. 24N.,  14 miles southwest of: SW. 4 sec. 32, T. 24N.,  15 miles southwest of: SW. 4 sec. 32, T. 24N.,  16 miles southwest of: SW. 4 sec. 32, T. 24N.,  17 miles southwest of: SW. 4 sec. 32, T. 24N.,  18 miles southwest of: SW. 4 sec. 32, T. 24N.,  19 miles southwest of: SW. 4 sec. 32, T. 24N.,  19 miles southwest of: SW. 4 sec. 32, T. 24N.,  10 miles southwest of: SW. 4 sec. 32, T. 24N.,  10 miles southwest of: SW. 4 sec.	Same (900 feet from entrance, wet sample, 814-inch bed, 79+-inch cut).	3 miles north of, SW. 4 SW. 4 sec. 13, T. 24 N., R. 6 E., prospect, bottom of shaft, 734-inch cut.	Kummer, SE. 4 NE. 4 sec. 26, T. 21 N., R. 6 E., Kummer mer mine (100 feet south of entrance, 494-	inch bed, 46½-inch cut). Same (1,500 feet north of entrance, No. 1 bed, 50½ inches, 49½-inch cut).	Palmer Junction, NE. 4 NE. 4 sec. 14, T. 21 N., R. 7 E., Hudson prospect (lower bench, 14-foot cut).	Same (upper 314-inch bench, 24-inch cut)	Preston, 1 mile southwest of; sec. 31, T. 24 N., R., 7 E., prospect, 25 feet in, wet sample, 3-foot cut.	3 miles southwest of; 6 miles from Issaquah, SE. 4 SW. 4 soc. 12, T. 23 N., R. 6 E., surface prospect	(main bed, upstream 4 feet, 46}-inch cut). Same (3}-foot bed, downstream, 25-inch cut)

854	858	854	854	864	855	855	855	855	855	855	855	855	855	857	857	7528
474	474	474	474	474	474	474	474	474	474	474	474	474	474	474	332	332
11,727 13,293 13,874	11,768	13, 262	9,835	11,398	12,792	11,149	13, 954 10, 688 11, 840	13,961 10,233 11,257	13,779 10,386 11,466	13,864 11,817 13,019	14, 134 11, 498 12, 420	14, 137 11, 150 12, 254	11,992	10,703	13,787	10,006 12,199 13,477
6,515 7,385 7,708	6,638	7,368	5,464 5,464	6,332	6,873 7,416	6,743	7,752 5,938 6,578	7,756 5,685 6,254	7,655 5,770 6,371	7,702	6,388	6,808	6, 662	6, 646	7,000	6, 559
5.0	4.7	4.9	6.8	5.5	2.9	2.9	4.0	3.6	3.9	4.	3.0	3.6	6.3	5.7	9.0	12.9
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		24.65		13.20	12.02	19.03	19.48	18.84	18.98	1.8.13 1.8.13 1.8.23	17.19	11.23	12.96	21.50		
	1.73	1985	70.1	1.96	3288	1.56	1.00		588	4888	200	1.540	1.78	888	1.13	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		64.15		64.04	73.52	67.33	59.47	77.68 56.49 62.13	76.05 57.83 63.86	73.18	69.93	8.08 8.08 8.08 8.08	78.62	59.74		
	6.08	5.08	10.0	6.14	25.87	5.47	34.88	6.56	7.6.4. 7.8.5.	5.00	588	26.37	5.54	5.60		
. 554.	520	8.4.	± 35.25	8.4.	#8.8.E	18.81	9224	1.24	1.68	3 55 55	325	28.28	28.8.8	988	66.73	2222
3.70	4.00	3.18	21.91	5.64	6.28	11.96	13.71	16.64	15.63	7.16	11.24	12.17	12. 18 13. 70	11.93	8.86	9.48
44.94 50.95 53.18	45.13	56.55 56.13 56.13 56.13	25.25 25.19 25.19	54.34	55.55 52.55 52.55 52.55 53.55	14.4.1 16.53	26.85 26.85 26.85	39. 17 43. 08	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	20.58	4.82	43.47	43.45 44.45 44.45	42.42	39.31	39.12 47.69 52.69
39.58 44.86 46.82			27.96 32.41	36.56	19.89 8.89 8.88 8.88 8.88	37. 17 40. 46	36.52 40.51	35.11 38.62	35. 72 39. 44	4.88.03 41.90	45°.45°.	38.38	33.30	35.20	42.53	42.83
11.78	11.15	13.34	13.73	11.74	7.32	8,14	9.73	9.08	9.44	9.23	7.42	9.00	11.11	10.45	16.18	17.97
-0300	010	2-030	2-010	o ≥ 0 0 0 0	0-010	o ⊢.⊘0	9-03	m ← 03 0	m-010	2-01	2-010	2-01	2-03c	2-010	2-01	n → 01 m
<b>E</b>	æ	A	п	A	<b>m</b>	=	A	В	A	<b>m</b>	m	m	m	B	4	4
9281	9280	9279	*9282	*0283	7720	9274	9273	9272	9271	9270	9267	9266	6487	9292	2,155	2456
Ravensdale, NE. ‡ see 1, T. 21 N., R. 6 E., McKay mine, McKay bed (south end of south gang- way, lovel 1, wet sample, 624 metres, 614-inch	Same morth end of south gangway, entire bed, 5-foot cut).	Same (north end of north gangway, 504-inch cut).	Same (position same as 9281, bony coal, 214-inch cut).	Same (position same as 9281, upper bench, 384-inch cut).	NE. 4 sec. 36, T. 22 N., R. 6 E., Ravensdalo No. 1 mino, loyol 2 (cest end of gangway, No. 9 bod 3 stating con)	Same (20 feet up dip from east gangway; No. 5 bed, 59 inches, 481-inch cut).	Same (150 feet up chute 59, east gangway, No. 5 bed, lower bench, 674-inch cut).	Same (position and bed same as 9273, upper bench, 384-inch cut).	Same (position and bed same as 9273, entire bed, 10 feet 7½ inches, 10-feet ½-inch cut).	Same (15 feet east of sump at base of slope, No. 5 bod, upper part 914 inches, 764-inch	Samo (100 feet up chute 16, east gangway, No. 4 bed, 674 inches, 67-inch cut).	Samo (east gangway, No. 3 bed, 98‡ inches, 74-inch out).	Sec. 36, T. 22 N., R. 6 E., No. 5 bed, lower 7 feet of 20-foot seam (upper part not exposed).	34 miles southeast of; NW. 4 SE. 4 sec. 28, Tr. 22 N., R. 7 E., McIntyre prespect, 5-foot cut.	Fenton, sec. 19, T. 23 N., R. 5 E., Renton mine (2,400 feet south of slope and 4300 feet from open-	Same (160 feet from slope and 230 feet from opening, 97-lach bed, 72½-lach cut).

Table of chemical analyses-Continued.

enco.	Page of this bulletin.				857	857	857	857	857	857	857	850
Reference.	Bul- letin No.		332	332	474	474	474	474	474	474	474	474
Calorific value.	British thermal units.		9, 938 11, 837 13, 720	13, 802 10, 208 11, 911 13, 734	13,828	9,868	9,333	10,074	12,357	10, 105	10, 753	13, 5, 2 9, 410 11, 239 13, 149
Calorif	Calo- ries.		5,521 6,576 7,623	7,668 5,671 6,617 7,630	7, 682 5, 863 6, 835	6,483	5,185	6,557	6,865	6,705	7,455	7,540 5,228 6,244 7,305
	Air-dry-ing loss.		10.7	9.6	7.2	7.5	7.2	7.2	8.1	10.0	9.5	× .
	Oxy-gen.		24. 62 12. 34 14. 31	23.74 23.74 12.86 14.84	25.22 14.67	25.33	24.55 13.50	10.00		26.63	26.55 35.45 54.45	16.53 14.60 17.08
	Nitro- gen.		1.16	1.62	1.59	1111	23.28	00 : 1		1.27	5635	1.59
Ultimate.	Car-		56.51 67.31 78.02	78. 68 57. 27 66. 83 77. 05	77.80 59.25 69.07	55.37 64.93	52.24	10.03				74.86 74.86
Ult	Hy- dro- gen.		5.57	5. 73 8. 83 75 75 75	5.62	0.00	60.67	00.00				5.77.73
t	Sul-		0.61	.72 .84 .97	.79	552	80.85	44.55	12.65	12.4.	64.5.	57
	Ash.	,	11. 53 13. 73	11.37	7.58	11.59	14.85 17.37	9.93	7.49	8.42	5.77	12.16 14.52
ate.	Fixed carbon.		41. 04 48. 88 56. 66	41. 30 48. 19 55. 56	42.67	47.49	25.85 25.82 25.45 25.45	41.48	46.02	51.83	57.63 43.84 51.57	55.33 39.44 47.11 55.11
Proximate.	Volatile matter.		31.39 37.39 43.34	33.03	35.53	38. 92	31.82	33.5	36.07	38.91	42.37 35.39 41.64	44. 67 32. 13 38. 37 44. 89
	Mois- ture.		16.04	14.30	14. 22	14. 73	14.52	14.63	14. 42	16.27	15.00	16.27
	Con- di- tion.		-0.00	4-00	4-0	2-01	2-010	2 27 0	0 03 0	2101	m = N	01010
Sample.	Kind.		O	O	м	В	В	A	В	В	В	А
02	Lab- ora- tory No.		2687	2686	*9156	*9157	*9158	*9159	*9160	*9161	*9162	*9154
	Locality, bed, etc.	WASHINGTON—Continued.	Ronton, Renton mine—Continued. Same (pea coal)	Same (run of mine)	Same (north end of gangway, level 9 north, No. 3 bed, lower bench, 32½-inch cut).	Same (position and bed same as 9156, upper bench 54 inches, 46-inch cut).	Same (level 5 south, 140 feet up plane 1 north, No. 2 bed, 160½ inches, 33-foot cut).	Same (level 7, 500 feet north of main slope, No. 3 bed, upper bench 54 inches, 4½-foot cut).	Same (position same as 9159, lower bench of No. 3 bed, 31-inch cut).	ol 6 south, plane 6 of sed, upper bench 58	inches, 4f-foot cut). Same (position and bed same as 9161, lower bench 3 feet, 3f-foot cut).	T. 23 N., R. 5 E., Denny-Renton mine, gangway, No. 1 bed (300 feet north of south line of sec. 17, upper bench 27 inches, 26-inch cut).

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97		C.

			221022					~~							200
889	860	860	860	198	861	861	861	861	193	861	861				863
474	474	474	474	474	474	47.4	474	474	474	474	474	474	474	474	474
9,387 11,281 13,156	12,442	10,710	10,577		12,406	11, 144	11,867	11,550	10,003	11,556	12, 344 12, 344 13, 045	14,350 10,888 11,606	14, 406 10, 310 10, 894 14, 324	12,524 13,097 15,147	
5,215 6,267 7,309		6,920	6, 176 8, 176		6,892	8,090 6,191 6,612	6,593	6, 415 6, 795	5,015 5,015 5,846	6, 420	7,247	6, 972 6, 049 6, 448	8,004 5,728 6,052 7,957	6,958 7,276 8,415	
8.9	7.3	4.1	3.7	3.5	2.6	4.0	2.3	3.1	2.6	2.2	3.3	2.6	2.3	2.7	4.
26.91 14.40 16.78	12.14	0. 93	10.02		14.33			14.33 14.33 9.94					12. 03 13. 49 9. 23 12. 14	9.86 6.25 7.22	
1.54	1.84	2.20	1.38		1.35	1.59	1.60	1338	1. b7				1.37	1.56	
53. 60 64. 42 75. 13	69.64		57.86 60.81		68.09			63.91 67.67			*		79. 55 56. 98 60. 20 79. 16	69.83 73.02 84.45	
5.92	4.69		4.60		5.37			4 × × × × × × × × × × × × × × × × × × ×					5. 64 4. 72 5. 73	5.46 5.20 6.01	
. 43	.51	88.2	1.56	1.08	.85	1.33	47.	18.83	1666	25.52	8888	60.74	.92	.35	382
11.86	10.69	12.41	24.34 25.58	16.08	10.05	15.48	14.85	14.4	24.90 26.19	16.50	8.61 9.10	18.23	22. 67 23. 95	12.94	10.73
39.12 47.02 54.83	53.90	58.81 62.63	43.56	37, 78 40, 25	48.74	57. 22 41. 47 53. 30	45.25	44.0	35.81	48.54 8.34 8.34 8.35 8.35 8.35 8.35 8.35 8.35 8.35 8.35	51.09	44.10	54, 75 37, 81 39, 95 52, 53	49.48 51.74 59.84	50.51 52.41 58.97
32. 23 38. 73 45. 17	27.18	22.69	27.25 28.64 38.64 88.64	39, 98 42, 61	36. 45	36. 68 39. 17 46. 99	35.60	38.0	38. 00 38. 00	35.88	37.68	34.20	45. 25 34. 17 36. 10 47. 47	33. 21 34. 73 40. 16	35.14 36.46   41.03
16.79	8.23	6.09	4.85	6.16	4. 76	6.37	4.30	5.6	4.94	4.08	5.36	6.20	5.35	4.37	3.62
-0100	-1010	o 01 0	2 1 2 1 2	03 0	o ⊢ c1	n - 01 m	- 010	O ++ C3 C	3 C1 c	o 01 0	o → c3 c	2-01	m = 01 m	222	- C3 F3
щ	М	щ	д	<	B	В	m	B	д	4	4	C	ت ت	Ö	m
*9155	10031	10032	10033	520D	9172	9173	9174	9175	9176	518p	219D	585D	586D	9410	9411
Same (part taken 540 feet south by 160 feet west and part taken 120 feet south of north quarter corner sec. 20, lower bench, 88½ inches, 4½-foot	Snoqualmie, 14 miles southwest of, Niblock mine (No. 3 bed, 25 feet up clutte, about 500 feet from	Emme (No. 4 bed, left of rock tunnel, 800 feet from entrance to No. 5 bed, 38-inch cut).	Same (No. 5 bed, gangway at end of entrance, tunnel to No. 5 bed, 160 feet from entrance, fil-inch cut.)	Taylor, sec. 3, T. 22 N., R. 7 E., Denny-Renton mine, chute 4, 3000 feet northeast of opening (No. 5 had 35 from out)	Same (chuic 29, east gangway, No. 4 bed, 32f- inch cut).	Same (in small crosscut, No. 2 bed, 444-inch cut).	Same (chute 27, about 45 feet above east gangway, No. 5 bed, 49 inches, 46-inch cut).	Same (chùte 5, about 25 feet above east gangway, No. 6 bed, 56½ inches, 55½-inch cut).	Same (50 feet west of position of 9173, No. 3 bed, 45½ inches, 41-inch cut).	Same (2,400 feet northeast of drift mouth, No. 5 bed, 46-inch bed, 434-inch cut).	Same (No. 4 bed, 1,500 feet northeast of drift mouth, 27½-inch cut).	Same (No. 4 bed)	Same (No. 5 bed)	Bockman, SW. 1 NW. 1 sec. 12, T. 20 N., R. 14 E., 3 miles northwest of Reslyn, Beckman mine, Roslyn bed (through 11-inch sereen, from	Samo (gangway level 2 west, between rooms 26 and 27, 61 inches, 584-inch cut).

Table of chemical analyses-Continued.

802	865	865	865	998	998	298	867	867	198	867	298	808	869	860	800	698
474	474	474	474	474	474	474	474	474	474	474	474	474	474	474	474	474
			-		14, 326 11, 432 12, 492						:====	14,356 11,578 12,539	<del>-</del>			
			6,341	7,985 6,364 6,917	5,0,0,	6,303	7,945				6,610	7,976 6,432 6,966	8,008			
2.3	5.1	2.7	3.4	3.9	2.8	3.0	2.0	.; 4.	2.0	1.5	2.0	2.6	6.	1.8	1.8	1:1
					12.33							16.78 10.78				
			1.31	1.38	1.74	1.48	1.87				1.36	1.32	1.64			
			68.23	28.8	63.35 69.23 69.23	66.25	79.				66.00	79.65 63.88 69.18	79.53		4	
					5.52						5.31	65.00 2.00 2.00 2.00 2.00	5.98			
3.45	38.4		4.4.4.	45.54	65.4.4.	4.74.2	8.8.8.4	.35	4.E.4.	4.8.8.		4.4.4.	33.	3.3.5	4; E 8;	33.3.4
13.23	11.82	13.10	12.68	13.09	11.94	12.15	11.91	11.60	13.62	11.78	12, 15	12.01	12.59 12.97	11.49	12, 26	13.30
44, 12			44.85 28.64 38.64 38.64				56.03 47.16 57.14 57.44		26. 43. 44. 88	56. 54 46. 47 49. 20	46.80	56. 47 45. 16 48. 90	56.23 50.23 50.23	52.52	59.34 48.45 50.13	57. 40 47. 68 49. 20 57. 02
			34.62				43.94 37.17 42.56						35. 75 36. 83			35.94 37.08 42.98
7.47	9.94	6.62	7.90	8.00	8.49	8.52	3.21-3	6.30	7.01	5.54	1 4.98	7.66	2.93	3.37	3.34	3.08
_							_		-		_		_			
6 B	7 B	Ed Ed	1 B	2 B	B G	8 B	<b>A</b>	<b>n</b>	B	B	n B	B B	<u>m</u>	# B	B	3 B
9446	2442	9445	9467	9472	9400	9408	9419	9420	9421	9422	9461	9403	9433	0434	9435	9436
Sev.	Same (oast end of gangway, level 1 southeast, 494 inches, 484-inch cut).	Same (gangway, level 1 southwest, between rooms 32 and 33, 44 feet, 514-inch cut).	Same (composite of Nos. 9445, 9446, and 9447)	Half mile north of; Cle Elum No. 2 minea (gangway, lovel 6 east, 49 inches, 444-inch cut).	1 mile north of; Cle Elum No. 2 Extension mine (gangway, lovel 8 east, 50 feet from rope slope,	Sec. 23, T. 20 N. R. 15 E. Cle Elum No. 3 Exten- sion mine. (air course parallel to incline, just be-	Half mile northwest of see 22, T. 20 N., R. 15 E., Talf mile northwest of see 22, T. 20 N., R. 15 E., 24 miles southeast of Roslyn, Roslyn No. 7 mine, Roslyn bed (level enex, 330 feet beyond	entrance to room 12, 524 inches, 514-inch cut). Same (air course below gangway, level 4 west, 800 feet west of slope, 584 inches, 554-inch cut).	Samo (gangway, level 2 east, 15 feet from barrier, 56‡ inches, 53‡-Inch cut).	Same (room 40, level 2 west, 54½ inches, 53-incheut).	Same (composite of Nos. 9419-9422)	1 mile north of; sec. 14, T. 20 N., R. 15 E., Summit mile (50 feet down slant from new tunnel,	Roslyn, sec. 20, T. 20 N., R. 15 E., Roslyn No. 2 slope mine, Roslyn bed (250 feet up room 7, block	Same (level 6 west, beside barrier pillar, 544 inches, 534-inch cut).	Same (level 6 west, gangway between rooms 2 and 3, 544 inches, 53-inch cut).	Same (10 feet below air course below level 8, 602 inches, 491-inch cut).

a Roslyn bed.

Table of chemical analyses—Continued.

	202	Sample.			Proximate.	nate.			Þ	Ultimate.				Calorifi	Calorific value.	Reference.	nce.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy-gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
WASHINGTON—Continued.  RITHING COUNTY—continued.												•					
Kosiya, Kosiya No. z mine—Continuou. Same (composite of Nos. 9433–9430)	9464		HOLE	3.16	35.60 36.76 42.20	48.77 50.36 57.80	12.47 12.88	0.35	5.47	69.08 71.33 81.87	1.53	11.10 8.56 9.84	1.4	7,025 7,254 8,325	12,645 13,056 14,985	474	698
Sec. 20, T. 20 N., R. 15 E., Roslyn No. 4 mine, Roslyn bed (gangway of level 11 west, block 2, 60)	9438	д	) — 61 c	3.75	33.80	47.95	14.50 15.06	888					2.3			474	869
inches, 583-inch cutt. Same (gangway of level 11 cast, between rooms 3 and 4, 604 inches, 563-inch cutt.	9437	m ·	2-01	3.66	35.85 37.21	50.04	12.28 12.75	3833					1.40			474	698
Same (composite of Nos. 9437 and 9438)	9465		. — α <sub>1</sub>	3.68	35. 64 35. 64 35. 64	57.35 48.59 50.45	13.40	44.92.5	5.21	67.57	1.33	9.03	1.8	6,807	12, 253	474	869
Same (2,000 feet from foot of shaft, 583-inch bed, 54-inch cut).	2458	4	m → 01 m	3.39	37.34 38.65 43.30	55.50 56.60 56.60 56.60	10.39	4. E. E. E.	6.05	81.49	F. 04	10.49	1.3	7, 137 7, 387 8, 278	12,847 13,297 14,900	332	698
One-fourth mile northeast of; see, 9, T. 20 N., R. 15 E., Roslyn No. 2 mine, Roslyn bed (level 8, 15 feet west of east rope slope, 49) inches,	9442	п		4.47	38.38 44.28	46.54 48.72 55.72	12.01 12.57	448					1.9			474	870
Same (level 7 west, entrance to room 80, 523-inch cut).	9443	g	-010	4.42	35.41 37.05	47.15	13.02 13.62	143					1.8			474	870
Same (level 10 east, 75 feet beyond room 43, 524 inches, 51§-inch cut).	9444	В	2-030	5.41	38.50	46. 16 48. 80 55. 84	11.93	. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.					Ci :			474	870
Same (about 6,000 feet from mouth of mine, 483-inch cut).	2457	V	- 01 m	3.36	37.41 43.70	48.20 56.30	13.91 14.39	3,000					6			8228	870
Same (composite of Nos. 9442, 9443, and 9444)	9468	:		4.66	36.02 37.77 43.45	46.86 49.16 56.55	12.46 13.07	86.40	5.87 5.61 6.45	66.86 70.13 80.67	1.41	13.09 10.88	2.0	6, 801 7, 134 8, 206	12,242	474	870
Three-fourths mile southeast of; sec. 16, T. 20 N., R. 15 E., Roslyn No. 6 mine, Roslyn bed (east end of level 7, 55 inches, 53‡-inch cut).	9141	g	200	4.50	36.38 38.09 43.87	46.53	12.59	.45					1.8			474	871

			AN.	ALYSE	s o	F. C	DALS	IN	TH	E U	NITE	D S	TATI	ES.		213
871	871	871	872	872	872	872	872	872	872	873	873	873	873	873	:	874
474	474	24. 24.	474	474	474	474	47.4	474	474	47.4	474	474	474	474	333	474
			41:0: 88:8:						12, 254	14,715			12,848	15,002 11,831 12,337	14,886 12,586 12,996	14. 929
		6,753	%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%	6, 153					6,808	8,175			7,138	6,573	8, 270 6, 992 7, 220	8,294
2.1	1.9	1.9	2.5	1.6	1.4	1.5	1.7	1.9	1.6	1.1	1.1	17	1.1	63	1.3	1.3
			5.25						13.34						11.62	
			1385						1.27				1.44	11.1	1.28	1,47
			65.55 69.51 8.52 8.53						67.68						69.35 71.62	
			5. 13 5. 13 5. 13						5.54						6.07 4.96 8.96	
86.04	÷±±;	4.4.4	84.4.		25.85	484	£8.4:	588	464	*****	4.8.8.	4. C. S.		* & & &	0.1 0.8 0.8 0.8 0.8	40.41.46
12.34	12.46	12, 53	12.69	11.97	13, 31	10.55	11.74	11.01	11.77	10, 46	11.52	11.95	11.27	16.43	12.26 12.66	10.71
				56.95 56.92 56.93 56.93							50.83 50.83 50.83					49. 53 51. 28 57. 68
				35.68 37.72 43.19							36.20					36.34 37.63 42.32
4.84	4,45	4.65	5.70	5.43	4.21	4.96	5.24	4.70	4.95	3.02	2.95	3.26	3.08	4.10	3.16	3. 42
C1 C	o ⊢ 010	o – 010	2-010	2400	-010	2-010	o → 64 c	2 ~ 63 6	20-01	n – n	m ← 03 :		n → 01	n → 61	200	24-0169
<b>m</b>	m		B	g	В	n	a	8	A	a	B	В		B	0	<b>m</b> .
9440	. 9439	9466	9402	9423	9424	9425	9426	9427	9462	9416	9417	9418	9460	9407	3098	9428
Same (east end of lovel 5, 574 inches, 544-inch cut).	Same (lovel 7, stump pillar between rooms 1 and 2, 544 inches, 52-fach cut).	Same (composite of Nos. 9439, 9440, and 9441)	1 mile northeast of; see, 10, T, 20 N., R, 15 E., A. & E. mine, 160 feet up room 9, Roslyn bed (52\frac{1}{2}) inches 511 inch 2015	14 miles southerst of see, 22, 7, 20 N., R. 15 E., Roslyn No. 5 mine, Roslyn bed (barrier pillar, 10fect abovo level 2 gangway, 43 feet, 563-inch	Same (lovel 3 west, entrance to room 50, 63} inches, 624-inch cut).	Same (air course below level 4, about 30 feet west of slope, 594 inches, 584-inch cut).	Same (gangway 3 east, entrance to room 42, 563 inches, 553-inch cut).	Same (barrier pillar, gangway of level 1 west, 564 inches, 534-inch cut).	Same (composite of Nos. 9423-9427)	24 miles northwest of; sec. 6, T. 20 N., R. 15 E., Patrick-McKay mine, Roslynbed (50 feet	Same (and of gangway, level I cast, 494 inches, 474-inch cut. Same (and of gangway, level I cast, about 1,000 feet from rock tunnel, 604 inches, 494-inch	Same (level 1 west, entrance to room 18, 541 inches, 531-inch cut).	Same (composite of Nos. 9416-9418)	Same (344-Inch cut); lower bed (404 inches)	Same (tump coal)	14 miles west of; see, 7, T. 20 N., R. 15 E., Roslyn No. 3 mine, Roslyn bed (entrance to room 48, 44 feet, 50-inch cut).

Table of chemical analyses—Continued.

	02	Sample.			Proximate.	nate.			2	Ultimate.				Calorifi	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carboon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy- gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulle-tin.
WASHINGTON—Continued.																	
Roclyn, Roslyn No. 3 mine—Continued.  Same (level 6 gangway, between rooms 6 and 7,	9429	В	H 6	3.21	36.51	49. 19	11.09	0.37					1.1			474	874
Same (150 feet up slope from base of shaft, 524 inches, 514-inch cut).	9430	В	10 m c3	33	42. 60 35. 21 36. 42	57. 40 51. 08 52. 84	10.38	4.8.8.					1:1			474	874
Same (room 12, battery 3, level 1 west, 100 feet from gangway, 62 inches, 614-inch cut).	9431	В	m=0:	3.18	40.80 36.09 37.28	59. 20 46. 69	14.04	8884					1.0			474	874
Same (room 3, battery 4, level 1 west, 150 feet from gangway, 494 inches, 484-inch cut).	9432	B	: o c:	3.14	37.60	56. 40 51. 42	10.63	4.60.60					1.0			474	874
Same (composite of Nos. 9428-9432)	9463		10 H C	3.08	35. CO 36. 73	57.70 49.95 51.54	11.37	8.4.	5.53	70.29	1.54	10.87	1.1	7,146	12,863 13,271	474	874
2½ miles west of, Busy Bee mine, 4½-foot bed, 37½-inch cut.	9406	щ	m=0m	3.30	41. 61 36. 22 37. 46 41. 27	58.30 53.30 58.73	8.04	94.4.4.	6.07	82.17	1.80	9.51	1.4	8, 352 7, 430 8, 465 8, 465	15, 034 13, 374 13, 829 15, 237	474	875
LEWIS COUNTY.			***														
Centralia, 14 miles northeast of; SW. 4 SW. 4 Sec. 34, T. 14 S., R. 2 W., Richmond mine, Potlatch	*9177	В	- 27	26.71	32. 79	32.09	8.41	1.52 2.07		45.85	1.08	36.83	14.9	4,459 6,084	8,026 10,951	474	876
Chehalis, 1 mile northeast; Superior mine No. 1, 10 feet east of rock tunnel to bed, 52-inch cut.	*9942	В	ಣ್ಣಣ	27.17	50. 54 33. 80 46. 41	49. 46 28. 11 38. 60	10.92	2.34		60.25	1.22	20.17 37.80 18.75	14.3	6,872	12, 370 10, 393	474	876
# mile up track from depot and to the north; Superior mine No. 2, 50 feet up No. 5 chute, 1154-inch cut.	*9941	В	m = 01 m	30.50	54. 59 34. 94 50. 28 54. 14	45. 41 29. 61 42. 60 45. 86	4.95	1.25	6.0.0 5.0.0 4.0.0 6.0.0	70. 87 45. 48 65. 44 70. 46	1.08	40.68 19.52 21.01	17.1	6,343	12, 220 1, 934 11, 417 12, 294	474	877

877	878	878	879	879	879	880	880	880	880	880	880	880	880	881	<u>&amp;</u>	882
474	477	474	474	474	474	474	474	474	474	474	474	474	474	474	474	474
10,417	7,945 11,214	12,577	10, 497	14, 551 9, 823 10, 690	14, 674 9, 607 11, 101	9,241 10,107	13,802 10,109 10,894	10,000	11,860	10,395	10,519	10,561 10,561 11,826	14, 476 11, 398 11, 923	8, 861	13, 196 11, 155 12, 557	14, 229 7, 142 10, 526 12, 071
5,787	6,414	6,987	6,374 832 832 844 844	5, 939	8, 152 5, 337 6, 167	6, 485 5, 134 5, 615	7,668 5,615 6,052	5,574	6,589	5, 382 5, 775 6, 116	5,468	5,867	6,624	4, 475 4, 923	7,331 6,197 6,976	7, 905 3, 968 5, 848 6, 706
19.3	15.7	15.2	6.0	5.8	8.7	5.2	4.4	63	2.7	2.3	2.9	8.9	2.4	5.1	8.5	19.1
		19.34							5.32	0.48						
1.05	1.04	1.21	1.32				1 · · · · · · · · · · · · · · · · · · ·		1.31	70.T						
41.82	63.91	645.58 88.50 88.50	%						66.51							
6.56	0.04	6.98 5.22 5.22 6.23	5.09						4.61	5.03						
.39	52.15	8888	3,5,8,8	888	38.94		1.27	588	1111		88.4	28.6	1.105	3.69	<b>8</b> 888	2.97
9.74	7.67	5.75	19.35	24.95	15. 22 17. 59	24. 49 26. 78	20.61 22.22	21.42 22.86	17.31	20.09	22.25	16.35	17.52	29.86	10.44	8. 68 12. 79
27.88	. 55.55 . 55.55 . 55.55	43.39	44.86.98	67.88	93. 18 49. 59 57. 31	34.38 37.61	51.37 37.81 40.75	37.64 40.16		42.77	42.94	52.74		38.21 36.53	54.40 53.08	60.15 27.30 40.24 46.14
31. 77	48.92	23.95 48.42	27.33 29.87	4.57	25.72	32. 56 35. 61	48. 63 34. 35 37. 03	34.65	28.07	33.95	33.31	25. 85 28. 95	26.57 27.79	30.62	35.17	39.85 31.87 46.97 55.86
30.61	29. 15	29.88	8.51	8.11	13. 47	8.57	7.23	6.29	4.08	5.57	6.44	10.70	4.41	9.10	11.18	32.15
-070	0 03 0	o 01 0	20-00	2-010	2100	2-03	n → 01 °	2-010	0-01	2000	2-010	2-101	n − 01 0	2-02	m ~ 01 €	m = m
M	B	В	В	Д	В	B	В	B	В	В	щ	В	В	m	В	В
*9945	*9944	*9943	6488	6496	6490	9879	9880	9881	9883	6494	6492	6491	6493	6489	6495	9940
1 mile northeast of, on logging road; Twin City mine, face of gangway, 300 feet east of slope,	3 miles east of, on logging road, Chebalis mine, stump pillar, 250 feet from entrance, 672-	4 miles east of, on logging road; Sheldon mine, 250 feet east of slope and 40 feet up pitch, 65½-inch	Glenavon, 44 miles southwest of; sec. 14, T. 13 N., R. 4 E., Luthkens prospect, in 60-foot entry,	Same (Hostetter prospect, in 26-footentry, 42-inch cut).	5 miles west of; NE‡ sec. 10, T. 13 N., R. 4 E., 72-inch cut.	Ladd, sec. 13, T. 14 N., R. 4 E., East Creek Ladd mine (50 feet in, upper water level, No. 4 bed, face	of gangway, 49½-inch cut). Same (250 feet in, No. 3 bed, lower bench, 42½-inch cut).	Same (250 feet in, No. 3 bed, upper bench, 13-foot cut).	Same (60 feet up chute 62, level 1, No. 2 bed, 47 inches, 3½-foot cut).	Half mile southwest of; sec. 13, T. 14 N., R. 4 E., open cut, Watkins prospect, No. 3 bed,	Same, No. 4 bed, 501-inch cut	Bec. 12, T. 14 N., R. 4 E., Ladd mine, No. 2 bed	Same (49½-inch cut)	24 miles southwest of: sec. 26, T. 14 N., R. 4 E., Nisqually prospect mine, bed not known;	possibly No. 3 Ladd, 201-inch cut. 5½ miles southwest of: sec. 34, T. 14 N., R. 4 E., Snow prospect, 69-inch cut.	Littell, 4 miles northwest from; Crescent mine, gangway between the 17th and 19th chutes, 642-inch cut.

Table of chemical analyses-Continued.

	200	Sample.			Proximate.	nate.			D	Ultimate				Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-	Air- dry- ing loss.	Calo-	British thermal units.	Bul- letin No.	Page of this bulletin.
WASHINGTON—Continued. LEWIS COUNTY—Continued.																	
Longraire Springs, 12 miles east of; SE: 4 sec. 1, T. 14 N., R. 10 E., Weikel mine, 90 feet in, No. 6	9091	щ	-070	4.2		51.2	34.05 35.56	0.48	2.73	53.61	0.87	4.33	3.5	4,935		474	883
bed, 34-foot cut. Same, surface prospect, No. 4 bed, 1-foot cut	2606	m.	m ← 01	2.9		885.0 84.2 2.2	6.6	888	4.24	00.00	Ŧ : :	0.16	2.1	7,640	13,750	474	883
12 miles east of; SE, ‡ NW, ‡ sec.13, T. 14 N., R. 10 E. Davis prospect. No. 6 (or Printose) bed	2606	В	e2 – 63	5.1		90.5 38.6	49.7	1.05					3.7	8,8,8,6 13,25 105 105 105 105 105 105 105 105 105 10	15,200 5,985 6,310	474	883
(middle bench, 17-inch cut). Same (lower bench, 59-inch cut).	6606	Д,	∞ –ι¢ι	3.9		74.2	17.53	2.20	3.35	71.41	1.35	5.86	3.1	7, 370 6, 615 6, 885	12,390	474	883
Same (best coal of lower bench, 6-inch cut)	9100	В	m → m	2.7		90.5 79.6 81.5	10.67	283	3.27	90.92 79.22 81.39	9889	2.6% 2.0%	2.0	×,7,7,8	13, 350	474	883
Same (upper bench, 32½-inch cut)	9101	В		3.6		91.5 59.5 62.0	28.40	23.83	23.17	62.23	86.1	30.00	2.8	, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5,	10,045	474	883
Same (bony layer above lower bench, 25-inch cut).	9102	<b>M</b> ·	m — 61 6	3.9		55.25	35.4	25055	4.07	88.20	1.40	10°0	3.0	5, 205 2, 820 2, 015 2, 045	8,855 9,030	474	883
Same, Summit Greek prospect, 35 feet in gangway, 334-inch cut.	8606	Д	2-1016	3.7		47.6	41.16	2.73		47.64 49.47 86.39	91	6.99	2.9	8, 440 8, 610 8, 610	7, 990 8, 300 14, 490	474	883
Mendota mine (80 com 2, 1111-inch	*10324	Д	0-030	20.55		42.39	12.31	855		48.91	38.88	30.44	11.5	6,077	8, 690 10, 939	4-14	884
Same (foot of slope, 850 feet from portal, 1183-inch cut).	*10323	Д	2-010	19.25		34. 29 42. 46	12.62 15.63	1.17	. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	50.00	1888	15.20	9.6	6, 918 6, 090 7, 218	8,852 10,962 12,992	474	884
Sulpbur Springs, 6 miles east of; SE. 4 sec. 7, T. 13 N., R. 10 E., 2 miles east of Cowlitz River, Bar- nett surface prospect (3-foot cut).	0606	д	0 1 63 60	7.4	00 00 00 00 00 00 00 00 00 00 00 00 00	51.8	35.8 38.0	1.30					5.6	4,555 4,920 8,010	8,200 8,850 14,420	474	882

	500	988	988	988	887	887	887	887	988	88	068	880	888	889	800	
	474	474	474	474	474	47.4	474	474	474	474	474	<b>574</b>	474	474	474	474
	10,294	8, 408 8, 408 15, 761	9, 452	12, 308 13, 338	12,530	12,272	12, 23, 27, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25	12,719	13,572			11,518	12, 130	12,23,23	13, 284	14, 828 12, 073 12, 820 14, 993
	5,719	67.1 67.1 7.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	5,251				6,872	7, 066 7, 300 8, 378	7,540			6,652		6,852 7,125	7,380	8, 238 6, 707 7, 122 8, 329
	2.6	2.4	7.0	6.1	1.4	2.7	1.8	1.3	c;	स्म टां	7.	3.0	2.4	2.00	2.0	4.6
	5.00	9.000						0.17			.95	5.37	96.00	. 55.00 . 55.0	11.05	8.62 8.62
	1.39	1.32		20.0	20.02	11.00	282	25.01.61	1886	69.19	55.84					2.39 2.39
-		46.95 48.95 74.95						73.05			44.16					82.63 82.63 82.64
		00000 000000		25.00		98.98	5.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	200 cm	25.55			5.01	4.8.84	2.4.4.7.4.7.4.7.4.7.4.7.4.7.4.7.4.7.4.7.	5.03	6.03 5.34 5.82 5.83
	44.	28.7.2	22.4%	8838	54.8	330	- xx xx x	88.69.4	55.5%	4.38.38	8000	86.4.	55.55	28.4.	552	\$5.4.4.6°
		38.04	26.50 29.25	11.35	13.15	13.19	14.09	12.46	8.13	14.59	6.25	20.26 21.06	15.50	15.37	6.41	13.65
-	46.66	85.92 87.45 89.45	26.93 26.93 26.94	46.57 50.47	46.81	34.41 8833	45. 47 47. 17 55. 95	50.96 50.96 50.96	52.14	50.19 52.31 61.69						53. 03 62. 01
	25. 43	3252	12.78	34.36	38.73 28.03 28.03	36.95	38.23	35.02	36.04 37.42	32.48 38.31	39.87	27.65	30.08	27.05 28.13	38.39	41. 14 30. 59 32. 48 37. 99
_	4.11	4.02	: :	7.72	3.25	: :	3.61		: :	4.06	3.47	3.81	3.74	3.84	4.00	5.83
_		9 11 01 01		2-1030	94070		9-016				-070	0-1010	) H C) C	0 010	2-101	<b>800</b>
	A	я	m	A	g	Я	g	m	Д	м,	m .	m	А	a	д	O
	9884	9885	6486	9886	2886	9888	6886	0686	1686	2460	2459	9555	9556	9557	9558	9559
PIERCE COUNTY,	Ashford, sec. 22, T. 15 N., R. 6 E., Masher mine, end of gangway, 4,400 feet from entrance (lower	Same (upper bench, 10 feet 5½ inches, 9-foot 9½-inch cut).	7 miles east of, sec. 20, T. 15 N., R. 7 E., Longmire prospect (35-inch cut).	Burnett, sec. 16, T. 19 N., R. 6 E., Burnett mine, level 2 (washed, still wet, from bunkers and car).	Same (lump, from bunkers)	Same (north end of gangway, 1,650 feet north on rock tunnel, No. 3 bed, lower bench, 67-	Same (position and bed same as No. 9888, upper bench, 18-inch cut).	Same (15 feet above gangway, manway south of rock tunnel, No. 3 bed, 6 feet, 4½-foot cut).	Same (crosscut 1, 2,200 feet south of rock tunnel, No. 2, bed 504 inches, 34-joot cut).	Carbonado, sec. 4, T. 18 N., R. 6 E., Carbon Hill mines, west side of syncline, chute No. 11, 3,000 feet from tipple at Carbon River (No. 1844-inch had 624-inch entry out.)	Same (1,000 feet from slope, on level 700 feet below the river near a small fault, Wingate	Same (south end of gangway, No. 3 coking bed, lower bench, 103 inches, 6-foot cut).	Same (end of gangway on water level, 400 feet from entrance, No. 9 bed, 43-inch cut).	Same (end of right gangway, No. 2 coking bed, 8 feet 94 inches, 1014-inch cut).	Same (first crosscut above level 3, 20 feet off slope, to north, No. 6 mine, Wingate bed,	61-inch cut).  Same (from bins and railroad cars, over 2-inch screen, washed and still wet, Douty coal).

Table of chemical analyses-Continued.

5	ANAL	LOLO	OF CO	ALS	IN	THE	UI	VITEI	, 51	ATE	٥.		
enco.	Page of this bullo-tin.		890	890		068		888	890		88	068	883
Reference	Bul- letin No.		474	474	474	474	474	474	474	474	474	474	474
Calorific value.	British thermal units.		13,538	15, 187 13, 212 13, 648	15, 295 13, 595 14, 026	15,278 11,707 12,145	13, 052 13, 480	15, 161 12, 037 12, 386	11,270	11,628	12,247	12,856 13,232	12, 433 12, 433 12, 810
Calorifi	Calo-		7,521	8, 437 7, 340 7, 582	8,497 7,553 7,792	8,488 6,504 6,747	2, 123 7, 251 7, 489	6,881	6,261	6,697	6,0%	7,142	6,907
	Air- dry- ing loss.		1.5	2.0	1.8	1.9	1.7	cı ci	2.7	5.3	1.8	1.1	1.8
	Oxy- gen.		9.42	7.81 9.34 6.72	7. 53	10.50	2.00.7	8. 15 6. 16	11.13	26.42	10.10	7.84	0x .x0
	Nitro- gen.		2.10	1.89	2, 10	2.13	1.97	1.89	1.78	7.07	2.00	4888	20.03
Ultimate.	Car-	,	74.07	83. 10 72. 54 74. 93	83.97	65.52	71.46	83.00 65.62 67.53	62.34	91. 99	67.24	32.23	81.99
D	Hy- dro- gen.	4 99		6.18		4.94	5.32	5.77 4.59	35.55	0,40	5.33	5.38	2
	Sul-		0.49	50000	24.4	56.58	28.	3.2.8		3975	24.45	1.11	24.45
	Ash.		% % 35.23	10.43	7.95	16.38	10.74	18.33	19.51	17.71	14.88	10.65	16.04
nate.	Fixed car- bon.		52.83	59.27 51.54 53.24	59. 67 51. 81 53. 45	58. 23 50. 29 52. 17	62. 85 51. 56 53. 26	59, 90 50, 77 52, 25	47.59	48. 18 49. 94	49.53	53. 66 55. 24	50.12
Proximate.	Vola- tile mat- ter.		36.31	8.25. 8.25. 8.25. 8.25.	40.33 37.17 38.35	41.77 29.73 30.84	37. 15 34. 52 35. 65	28.07 28.89	28.45	30.58	32.23	32.81	37.96 30.94 31.87
	Mois-		2.74	3, 19	3.07	3.60	3, 18	2.83	4.45	3.53	3.38	2.85	2.90
	Con- di- tion.		10	(m-0)	10 H 01	B → C1:	ro ⊷ c1	eo ∸ e₁ e	2-01	2-010	3 (7)	10 m cs	m = 01 0
Sample.	Kind.		А	п	D	m	C	я	n	0	я	д	4
27	Lab- ora- tory No.		9560	9562	9563	9561	9200	9569	9570	9571	9572	1096	552D
	Locality, bed, etc.	WASHINGTON—Continued.	Carbonado, Carbon Hill mines—Continued. Same (samples from north and south ends of level 3 enneway mixed. Wineste hot. 54.	-21	Same (over 3-inch bar screen, Wingate bed)	Same (end of gangway on water level 3,200 feet south of portal, No. 5 bed, 48}-inch cut).	Same (lump, from car, Wingate bed)	Same (end of rock tunnel, No. 1 coking bed, 29 inches, 24-foot cut).	Same (40 feet above gangway, 500 feet from entrance, No. 11 bed, 53 inches, 374-inch cut).	Same (Douty lump from bins and cars, still moist).	Same (level 1, 100 feet up chute 13, 600 feet north of betten of electric slope, No. 1 bed,	Same (crosscut 10 between chutes 56 and 57, level 2, Wingate bed, 49-inch cut).	Same (main entry 3 north, 1,400 feet west, 89-inch cut).

		010 01	00.22	~ ~~		- 01.11					
	892	892	893	803	893	894	895	894	894	894	894
474	474		474	474	474	474	474	474	474	474	474
12, 132 12, 726 15, 285 12, 650 13, 136 15, 088 12, 661 13, 214	15,368 12,317 13,108 15,037	12, 240	12,755 15,062 11,520 14,013	15,552 9,571 9,849 14,972	13,723 13,988 15,629	2,52,53,51,51,52,52,53,53,53,53,53,53,53,53,53,53,53,53,53,	13,419	13,405	11,245	11,039	11,815 12,301 15,417
6,740 7,7,928 7,7,298 7,334 7,344	8,538 6,843 7,282 8,354	6.800	7,086 8,368 7,7511	8,040 5,317 5,471 8,317	7,624	7,253 7,503 7,158 7,563	8,701 7,455 7,650	7,024	6,247	6,133	6,564 8,834 8,565
3.5	2.2	2.5	2.9	23	က	2.0	2.0	5.0	ල වේ	0.8	က
9.35 6.56 10.48 7.46 8.56 9.15				7.03 4.67 7.10		ი, ს, 4, დ, ს, 8, 4, 4, 8, 8	4.38			9.84 4.12	
999999999 112889 12889 99	2.28 2.203 2.48 48					12222				1.77	
67.18 84.64 84.64 71.82 71.82 70.13						23.78 23.78 21.72 25.85				66.40	
4.4.7.7.4.7.7.4. 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8	5.63 5.34 6.97 5.70					4.4.7.4.4. 88.8.9.7.				4.4.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5	
31.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		35. 35. 35. 35. 35. 37.	8.444.	. 47 . 48 . 73	52.53	25222	3859	1.03	27.7.	35.55	64.5
15.96 16.74 12.45 12.93 13.44 14.03	12. 06 12. 83 14. 00	14.97 15.56 14.70	15.32 9.55 9.90	33.26	10.31	13. 72 13. 16 12. 38 13. 08	10.79	12. 73	22. 73	21. 16 22. 69	19. 41 20. 21
50.31 63.38 63.47 53.47 61.41 61.41 52.39											
29.00 29.07 39.62 39.59 31.30 31.30 31.30	36.41 32.82 37.63 35.28 36.59	42.81 34.59 35.95 42.58 34.39	35.84 42.32 22.57 23.39	25. 95 18. 48 19. 02 28. 91	23.27 23.72 26.50	21. 00 21. 72 25. 01 19. 84 20. 96	24.11	20.22	18.09 18.09 24.65	17.71	12. 13 18. 88 23. 66
3.70	6.03	3. 79	3. 52	2.83	1.89	5.36	2.55	5.68	3.03	6.74	3.95
намнамна	0-00-01	en - 10 en - 1	00-00	m = 01 m	-030	-00-0	m-01	2-010	-00	o → 03 m	000
D D M	D 4	4 4	д	В	р	а п	В	B	В	В	м
9561	9567	10574	9574	8096	2096	9609	9096	9602	9603	9604	9605
Same (car sample)	Same (from bunkers and cars, washed, Wingate bed).  Same, Carbonado No. 4 N mine; rib in chute is, two blocks below 14th counter, Wilkeson	, 0	Fakfax, 1 milesouth of, Fairfax mine (Blacksmith bed, from bunkers, washed).	Same (south end of water level gangway, 75 feet from tunnel, No. 7 bed, 84 feet, 8-footcut).	w water level : 3-inch cut).	Samo (South end of short gangway from rock tunne), 500 feet in main gangway from No. 3 slope, 21-inch cut).  I mile south of, Montezuma mine, from bunkers, washed, bods 3 and 4).	Same (counter 2 on chute 6, No. 4 bed, 314-inch cut).	Same (chute 4, north water level, No. 1 bed, 512 inches, 4-foot cut).	Samo (5 feet above counter 1, chute 36, water tevel, No. 2 bed, 35 inches, 314-meh cut).	Same (from bunker, washed, No. 2 bed)	Same (chute 11, 5 fost above water-level gangway, No. 3 bed, 334-inch cut);

Table of chemical analyses-Continued.

Reference.	Page of this bulle-tin.		968	968	968	895	968	896	268		268	808	898
Refer	Bul- letin No.	474	474	474	474	474	474	474	474	474	474	474	474
Calorific value.	British thermal units.	11,344	11, 128 11, 128 12, 254	15, 221 11, 596 12, 281	11, 928 11, 928 12, 697	15,284 11,776 12,503	15, 264 12, 405 12, 803	12,751	10, 442 10, 442 11,000	14,510 10,274 11,142	14 305 10,856 11,390	10,650	11, 237 11, 603 11, 603 14, 850
Calorif	Calo- ries.	6, 302	6, 182	8, 456 6, 442 6,823	6,492 7,054 6,054	8,491 6,542 6,946	8,480 6,892 7,113	7,353	8,548 5,801 6,111	8,061 5,708 6,190	7,947 6,031 6,328	6,934	6,243
	Air- dry- ing loss.	6.2	7.8	4	4.5	4.5	o.i	2.9	2.7	4.7	2.3	3.5	1.4
	Oxy- gen.	11.54	11.,			3. 27 24. 24		7.88	8.63 8.63	11.39 15.32 9.12	11.71 13.18 9.46	15.63	8.82 8.82
6	Nitro- gen.	1.58	2.13			1.67	2.16	1.72	1.78	1.65	1.84	37:1:0	1.56
Ultimate.	Car-	63.00	84.91			68.59	88.91	71.61	57. 33 60. 40	79.67 57.19 62.02	79.65 59.19 62.10	83.53 83 83.53 83 83 83 83 83 83 83 83 83 83 83 83 83	62.56 64.59 82.67
.   P	Hy- dro- gen.	4.4.7 80.30	0.33			4.10	4.48	4.73	5.4.4 5.76 4.20 4.20 4.20	5.83	5.79 5.79 5.55 5.55	00.47 00.03 00.03	6.4.4.5 82.82 19.02
	Sul-	0.34	23.65	1689	5.84.7	38.5	8 2 2 2	955	24.00	43.43	55.55	4 - 4 -	0446
	Ash.	18.76 20.18	17.70	18.55	15.90 16.92	17.04	14.94	13.47	22.96 24.19	20, 41	20.38	18.47	21.18
nate.	Fixed car-	53.73 57.81	63. 73	63. 85	20.25	64.58	83.75 (0.55 62.49	59.29	71. 54 39. 14 41. 24	54. 40 40. 53 43. 96	56. 45 44. 30	85.138 121.38	66.55 50.55 13.80 13.80 13.80
Proximate.	Vola- tile mat- ter.	20. 46 22. 01	9.37	122.82	12.56	15.12 12.54 13.31	16.25 21.40 22.09	24.58	32.82 34.57	45. 60 31. 27 33. 91	43.55 32.71 34.32	35.09	30.17 31.15 39.87
	Mois- ture.	7.05	9.20	5.58	6.05	5.81	3.11	3.66	5.08	7.79	4.69	6.67	3.15
	Con- di- tion.	-00	2-0	⇔ − α 0	2-01	20 - 01	m → 01	0-010	10 m cs	~~°	m c3 c	m=01	e 10 − c
Sample.	Kind.	O	A	д	д		д	B	В	Ö	В	А	m
TÃ	Lab- ora- tory No.	9575	9577	9226	9580	10412	9578	9226	2686	9893	9894	9892	9000
	Locality, bed, etc.	WASHINGTON—Continued.  FIERCE COUNTY—continued.  Melmont, T. 18 N., R. 6 E., Melmont mine (from cars, washed).	Same (end of north water-level gangway, 100 feet from rock tunnel, No. 1 bed, 614 inches,	421-inch cut). Same (25 feet above water level, chute 2 north, No. 2 bed, upper bench, 32-foot cut).	Same (position and bed same as No. 9576, lower bench, 63½-inch cut).	Same (composite of Nos. 9576 and 9580)	Same (pillar, level 1 north, 200 feet up the dip, No. 3 bed, 4-foot cut).	Same (level 1 north, 50 feet above gangway, No. 3 bed, 77-inch cut).	Pittsburg, sec. 22, T. 19 N., R. 6 E., Black Carbon mine, 1.250 lock from entrance, 6 feet albove gangway,	Black (arbon bed, 67 frehes, 551-inch cut. Pittsburg mine (from bins and cars, washed)	Same (gangway just beyond chute 131, level 1, Pittsburg bed, 503 mehes, 504-meh cut).	Same (crosscut 1, between chutes 324 and 33, level 1, Lady Wellington bed, 59-inch cut).	South Willis, 2 miles from Wilkeson; sec. 22, T. 19 N., R 6 E., South Willis mine, Windsor bed (lower water-level gangway, 25 feet beyond clutte 11, 44-foct cut).

	899	668	668	890	006	000	006	000	006	006	006	000	206	803	106
474	474	474	474	474	474	F1-F	474	474	474	474	777	474	474	474	24 C.
10,384	14,746 9,536 10,008	13, 278 13, 023 13, 779	13,745	13,451	12,326	13, 165	15,617 12,299 12,992 15,426	12,317 12,773 15,332	11,383	12,256	13,890	12,978	11,563 12,395 15,250	8,170	8,565 11,010 12,460
5,769	8,192 5,298 5,560	7,932	7,636	7,473	6,848	7,314	8, 676 6, 833 7, 218 8, 571	6,843 7,096 8,512	6,130	6,972	7,717	7,210	6,424 6,424 6.886 8,472	4,539	6,842 6,115 6,925
5.0	63	3.4	2.4	1.4	5.5	4.9	4.3	8	2.3	1.2	1.6	2.1 20	5.4	12.4	16.8
12.55	8.91 11.89 8.07	12.23	7.33	5.73	9.06	3.53	. 8 . 8 . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3	6.59			867	4.07	10.4	35.99	
1.45	11.74						22.1.58 2.02.1.91 2.40	1.94 2.01 2.41				9666		16.1	1.37
							87.84 69.79 73.73 87.55	70.52 73.12 87.71			76.94	72.54	00	47.26	
5.13	6,16	35.88 85.88	.5.5. 15.88	5.53	4.5.04 2.04 3.04	5.09	4.52 4.15 4.93	4.41			50.23	80.83	00.0	6.37	
.43	1.15		36.0	1.04	94.5	 	. 45 . 45 . 73	.51	54.45	844.6	351.51	25.41		1.09	565.33
22.51	28.5	8.53	5.98	9.56	13.57	9.76	14.95	16.05	24.25	17.84 18.27	8.53	12.60	17.46	8.65	9.1
42.03	59.69 37.01 38.84	52.96	55.09	55.42	56.51	61.13	72.52 59.27 62.62 74.36	61.26 63.52 76.20					50.07	34.02	54.0
28.39	40.31 29.78 31.25	38.51	35.03 36.45	33.78	23.32	23.17	27.48 20.44 21.59 25.64	19.13 19.84 23.8					33.97 33.97	32, 25	31.5 41.0 46.0
7.07	4.71	5.49	3.9	2.79	6.6	5.94	5.34	3.56	3.06	2.34	2.52	3.69	6.71	25.08	23. 3
12	⇔ − €3 €	n 01 0	2-010	2400			ಬ್ಲುಬ	10100	-010	0010			0 1 10 10	-63	2000
0	Д	В	m	g	В	д	д	p	п	д	B	A	В	В	- PA
2006	2686	8066	6066	0166	9898	6686	0066	9903	\$000	9901	9902	9905	9880	*0178	*9094
Same (from bunkers, washed)	Wilkeson, sec. 28, T. 19 N., R. 6 E., Brier Hill mine, (500 feetsouth of water-level portal, 54-inch	Sec. 28, T. 19 N., R. 6 E., Gale Creek mine (10 feet south of auxiliary slope, level 1 air course, North 10, 200 just slope, level 1 air course,	Same (gangway, level 2, 100 feet south of rock tunnel, No. 2 bed, 3-foot cut).	Same (pillar between chutes 3 and 4, lovel 2 gangway north, Queen bed, 34-foot cut).	Wilkeson mine, sec. 34, T. 19 N., R. 6 E. (screenings rewashed).	Same (600 feet west by 600 feet south of north quarter corner of section 34, 100 feet south of	rock tunnel, No. 7 bed, 34-foot ent). Same (3,000 feet north by 1,650 feet west of southeast corner of section 34, south end of est gangway, No. 3 bed, 68½ inches, 57½-inch	Same (1,500 feet north by 1,200 feet west of the southeast corner of section 34, east water lovel, No. 2 bed, lower part, 95½ inches, 35-inch eart).	Same (position and bed same as No. 9903, upper bench, 17-inch cut).	Same (50 feet up chute 19, southeast gangway, No. 3 bed, lower beneh, 29-inch cut).	Same (position and bed same as No. 9901, upper bench, 78‡ inches, 42‡-inch cut).	Same (50 feet up chute 105 on southeast water level, No. 2 bed, 53‡ inches, 46‡-inch cut).	2 miles southeast of, Snell mine (75 feet from entrance, Snell bed, 28 inches, 2-foot cut). THURSTON COUNTY.	Centralia, 3 miles north of, T. 15 N., R. 2 W., 644 Inches, Perth, mine, 120 feet north of foot of slope,	Hurn (Tono); sec. 21, T.5 N., R. 1 W., Hannaford No. 1 mine (entrance of room 12, level 1 north, lower bench, 71 inches, 692-inch cut).

Table of chemical analyses-Continued.

nce.	Page of this bulle-tin.		-904	904	904	904	905	906		906	906	907
Reference.	Bul- letin No.	1	474	474	474	474	474	474		84	341	
Calorific value.	British thermal units.		8,550 11,180	12,510 8,630 11,160	12,340 8,908 11,273	12,757 9,167 11,673	12, 645 7, 803 9, 292 12, 834	8,771 11,309 13,169		0 0		
Calorific	Calo- ries.		4,750	6, 950 6, 200 6, 200	6, 920 6, 263 6, 263	5,093 6,485	7,025 4,335 5,162 7,130	4,873 6,283 7,316				
	Air- dry- ing loss.		17.4	16.7	16.0	7.2	6.3	9.5		2.9	2.8	2.1
	Oxy-gen.		33.94	34.78 18.92	21.11	33.47	19.85 26.10 14.12 19.51	31.01 14.26 16.61				
	Nitro- gen.		1.02	1.08	1.56	1.4.1	.73	.93				
Ultimate.	Car- bon.		50.36	73.68 49.56 64.08	71.49	52. 61 66. 99	72.57 43.44 51.73 71.46	48.88 63.02 73.38				
Ω	Hy- dro- gen.		6.19	6.19	5.30	6.34	5.04 5.38 5.36	6.04				
	Sul-		0.36	25.5	4555	54.70	1.50	3.09		2.84	### @ C	. 54
	Ash.		8.13 10.63	8.02 10.37	9.20	6.04	23.19	10.95		7.72	11.44	4.8
nate.	Fixed car-		37.4	49.6 49.6	25. 5 36. 67 46. 41	52.53 40 67 51.79	28. 93 34. 45 47. 59	32.96 42.50 49.49		51.12 53.66	53.17	76.31 78.74 82.84
Proximate.	Volatile tile mat- ter.		31.0	31.0 40.0	45.0 33.15 41.95	31.82	45.9 31.86 37.94 52.41	33.65 43.38 50.51		36, 43	33.02 34.78	15.81 16.31 17.16
	Mois- ture.	1	23.5	22.7	20.98	21.47	16.02	22. 44		4.73	5.06	3.08
	Con- di- tion.		-81	m-010	m → m o	n-01	n == n	-0100		-101	200	= ∺धंक
Sample.	Kind.		æ	В	В	В	Я	В		E	В	4
602	Lab- ora- tory No.		*9095	9606*	*9089	*9573	*9939	*9987		1586	1584	8169
	Locality, bed, etc.	WASHINGTON—Continued.	Hurn, Hannaford No. 1 mine—Continued. Same (200f eet from entrance of room 12, level 1 south, lower bench, 77 inches, 76- nch cut).	Same (entrance of room 8, level 2 north, lower bench, 77½ inches, 75½-inch cut).	Same (upper bench, 150 feet up slope in room 7, level 2 south, 63-inch cut).	Same (upper bench, 150 feet up slope in room 7, level 2 south, 53-inch cut).	Tenino, 2 miles southeast of, sec. 31, T. 16 N., R. 1 W., Black Bear mine, 30 feet up room 1, level 1 weet, 150 feet from portal of old gangway, 673-	3 miles outhwest of; sec. 35, T. 16 N., R. 2 W., King mine, 100 feet up room 10, north entry 25, 42-inch cut).	WEST VIRGINIA.	Colliers, 1 mile south of station; Pittsburgh bed (Patterson country bank).	Same (Pool country bank, full bed, 55-inch cut).	Alaska, 1 mile north of: Alaska mine, Fire Creek bed (pillar in Bradley's room 6,200 feet north of drift mouth, 443-inch cut).

907 907	808 808	808 808	900 BB	910
25 25 25 25 25 25 25 25 25 25 25 25 25 2				
14, 519 14, 452 14, 770 15, 502 15, 502 13, 786 15, 384 15, 548 16, 384 17, 648	14,170 14,170 15,620	14, 571 15, 653 14, 590 15, 158 15, 158 15, 158 16, 170 16, 170		14,688 15,226 15,610 14,884 15,745 14,578 16,019 15,665
8 8 8 8 8 8 7 7 7 8 8 8 8 8 8 8 8 8 8 8	8, 155 8, 155 8, 680	0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		\$\pi\$ \pi
6	m oi oi o	6 0 1	m ∞ 1~ ni ni ni	3.0
0 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		5. 15 5. 34 5. 34 5. 34		3.3.8.6. 9.3.8.4. 9.3.4.4.
11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	3	1.56		1.52
8 8 8 9 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		88.88.85.10 85.2.94.10		83.38 86.44 88.62
28.4 co		6.5 88 6.0 88 88 6.0 88 88 6.0 88 88 6.0 88 88 6.0		6.50 101 141
<b>486</b> 66888888888888888888888888888888888	388828888	35,235,55,55	55 <u>8888888</u>	250 250 250 250 250 250 250 250 250 250
4.6. 4.6. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.			22.72 2.72 2.86 2.72 2.82	2. 37 2. 46 1. 74 1. 81 4. 10 4. 12
<b>25.73.73.73.</b> 2.83.53.53.53.53.53.53.53.53.53.53.53.53.53	86.01.00.05.00.00.00.00.00.00.00.00.00.00.00.	25.55.55.05.25 25.55.90 25.05.00 25.00 25.	7.5.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7	56.74.75.74.75.75.75.75.75.75.75.75.75.75.75.75.75.
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4 4 4 0		≼ <u> </u>	< < <	< <
8294 1257 1258 1258	8154	8195	8138 8139 8139	7881
Same (pillar, Davis entry, 6,500 feet north of drift mouth, 491-inch cut).  Same (composite of Nos. 8169 and 8170)  Ansted, 1 mile from; Ganley Mountain mine (room 27 offentry 9, Ansted or No. 2 Gas 534-inch bed, 441-foot cut).  Same (room 15 off entry 15, 513-inch cut)  Same (run of mine, 35 tons)			Hoone, a mite from 1. Soone mine, Sewell bed (right entry 4, 2,000 feet from drift mouth, 574-inch mouth, 504-inch entry, 1,800 feet from drift mouth, 504-inch entry, 1,800 feet from drift same (right entry 4, 2,000 feet from drift mouth, 334-inch cut).	Same (composite of Nos. 8137-8139)

Table of chemical analyses-Continued.

<b>'±</b>	ANAL	TOE	10	OF CC	)AL	S IN	THI	2 01	ITE	פיע	TATE	10.		
Reference.	Page of this bulletin.			910	910	910	910	911	911	911	911	116	911	911
	Bul- letin No.													
Calorific value.	British thermal units.			0 0	14,663	15,415; 15,810 15,000 1	15,730	15,760 14,423 15,176	15,647 14,456 15,149	15,674 14,434 15,187	15,705 14,938 15,338	15,689 14,945 15,356	15, 736	
Calorifi	Calo- ries.				8,146	8,8,8,8,8,8,2,2,2,2,2,2,2,2,2,2,2,2,2,2	8,205	8,755	8, 693 8, 416 8, 416	8,708	8,725	8,716 8,303 8,531	8,742	
	Air-dry-ing loss.			1.8	2.3	2.0	2.7	4.2	3.9	4.1	1.9	1.8	2.6	2.6
	Oxy- gen.				5.83	3.52				7.32	3.18			
	Nitro- gen.				1. 47	282				1.48	1.61			
Ultimate	Car-				83.40	89.30				82.15	89.38			
p	Hy- dro- gen.				4.93	4.90				5.09	4.94			
	Sul-			0.91	2000	8888	844	388	858	388	8888	.554	.549	455241
	Ash.			4.13	44	3.0	2.8	3.02	3.35	3.14	2.24	2.35	5.54	5.44
nate.	Fixed carbon.			72.61	74.06	26.65.95 8.00.00 8.00.00	79.6	773.83	74.04	73.75	80.24 76.47 78.51	775.03	79.00	73.50
Proximate.	Vola- tile mat- ter.					20.77								
	Mois-			2.65	3.16	2.9	3.5	4.96	4.57	4.95	2.6	2.67	3.31	3.19
	Con- di- tion.			-00	n-10	NO-010	2010	m-010	n es e		100-01			n → 01 c
Sample	Kind.			Ą		4	4	4	4	:	4	4	4	Ą
02	Lab- ora- tory No.			8080	8166	8702	8703	7876	7877	8251	8171	9098	8060	8063
	Locality, bed, etc.	WEST VIRGINIA-Continued.	FAYETTE COUNTYcontinued.	Carlisle, Carlisle mine—Continued. Same (right entry 6, 2,800 feet south of shaft, 43½-inch cut).	Same (composite of Nos. 7880, 7881, and 8080	Same (left entry 1, off northwest entry, 2,500 feet from shaft, 603-inch cut).	Same (right entry 3, 3,700 feet southwest of shaft, 41\frac{1}{2} inch cut).	Oakwood mine, Sewell bed (left entry 1 off main entry, 3,000 feet northeast of shaft, 582-inch	Same (room 20, right entry 1, 4,000 feet north of shaft; 54½-inch cut).	Same (composite of Nos. 7876 and 7877)	Same (room 4, right entry 2, 2,000 feet from shaft, 453-inch cut).	Same (right entry 2, 3,500 feet from shaft, 42k-inch cut).	Claremont, a mile northeast of: Beechwood No. 1 mine, Fire Creek bed (Simpson entry, 554-inch cut).	Same (Beechwood main entry, 54\frac{1}{8}-inch cut)

913	116	911	912	912	912	012	912	912	912	912			914	914	914	914
					0 0 0			•	385	362	362	362		0 0 0		
	14,099	15, 611		14,513	19,782			14,593	15,365	14,960	14, 465	15,781 14,530 14,918	15,849			14,785 15,278 15,705
	7,833	8,673		8,063	8,708			8, 107	8,8,8,0 1,2,19 1,2,10 1,2,10 1,2,10 1,2,10 1,2,10 1,2,10 1,2,10 1,2,10 1,2,10 1	8,311	8,036	8,767 8,072 8,288	8,805	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		8, 214 8, 488 8, 725
3.4	2.9	2.1	3, 2	2.7	2.2	2.6	3.0	2.6	2.8	2.5	1.4	2.1	2.4	2.2	2.7	2.4
	3.15	3.37		2.80				3.07								3.28
	1.4	FQ.1		1.44	J. 50		* : : : : : : : : : : : : : : : : : : :	1.55	10.1	8 8 1 8 8 8 8 8 8	1.28	1.55	1. 69		0 0 0	1.46 1.51 1.55
	83.90			85.67			* 0 . 0 0 0 0 0 0 0 0 0	83. 17 86. 03			81.37	88.77 81.84 84.03	89.27			83.90 86.70 89.12
	4.83	4.91		4.74	4.98			4.92			4.75	4.63	4.74			5.22 5.02 5.16
.72	5.15.51	50.00	5255	32,8	1.33	35.53	65.	3.8.8	54.6	38.2	39.8	8888	85.28	888	.52	822.52
7.25	6.38	4.3	4.81	4.58	4,29	3.86	2.57	3.65	2.88	2.67	6.33	5.72	25.62	2.69	2.33	2.62
72.21	73.28	75.93	78.31	75.59	73.26	24.08	38.88	75.08	75.05	74.55	74.10	27.28 27.28 3.28 3.28	74.57	74.31	75.07	79.65 74.83 77.32
16.32	17.03	17.02	16.91	16.37	19.52 20.05	18.02	17.05	17.34	19.47	20.52	20.75 17.57 17.93	16.41 16.85	19.74 20.36	20.02	21.26 19.17 19.86	20.35 19.32 20.53
4. 22	3,54	2.87	3.97	3.46	2.63	3, 14	3.7	3. 33	3.71	3.26	2.0	2.61	3.05	3.01	3.49	3.23
-010	2-010	2400	0-0:	2400	2-03c	9-21	2-010	m ← 01 c	9400	2-010	20 → C3	ಣ=ಣ	2-010	200	n=01	e> Po ⊢ co
V .		٧	<		4	4	٧		<	٧	ວ	O	4	4	<	
8062	8115	8059	8061	8293	8005	8000	8023	8113	5404	5431	5501	5561	7994	8221	8220	8295
Same (face of the Harry Jones entry, 514-inch cut).	Same (composite of Nos. 8060, 8062, and 8063)	Beechwood No. 2 mine, Fire Creek bed (John Porter entry, 413-inch cut).	Same (face of the Old Folks entry, 45-Inch cut).	Same (composite of Nos. 8059 and 8061)	Derryhale: Derryhale mine, Sewell bed (right entry 8 off new main, 3,400 feet south of drift mouth,	Some state of the second of the second second second state of the second state of drift mouth, 641-inch	South Chilar, room 21, Price's air course, 3,800 feet northwest of drift mouth, 553-inch cut).	Same (composite of Nos. 8005, 8006, and 8023)	Same (3,500 feet northwest of drift mouth, 584-inch cut).	Same (3,000 fect southeast of drift mouth, left air course 5 off new main, 544-inch cut).	Same (run of mine, sample 1)	Same (run of mine, sample 2)	Dunglen; Dunglen mine, Sewell bed (room 1, right early 2, 600 feet northwest of drift mouth,	Same (room 3, left entry 5 off main entry 3, 1,400 feet N. 45° W. of drift mouth, 512-inch	Same (left 6 off main 4, 800 feet N. 45° W. of drift mouth, 44-foot cut).	Same (composite of Nos. 7994, 8220, and 8221)

Table of chemical analyses-Continued.

1.		(SES UI	914	915	915	915	915	915	915	916	916	916	916
Reference.	Page of this bulletin.		6	6	6	6	6	6	6	66	6	6	
	Bul- letin No.						:		<u>:</u>				:_
Calorific value.	British thermal units.		14, 562 15, 152	14,670	15, 610 14, 580 15, 138	C10, C1			14,630	15, 710			14,821
Calorií	Calo- ries.			_	8,672 8,100 8,410				8,125	8, 730			8,234
	dry- ing loss.		3.2	2.0	60.1	00	20	2.6	2.7	2.7	ci ci	2.6	2.5
	Oxy-gen.				3.01	3.10			6.54	3.75			6.34
e)	Nitro- gen.				1.55	1.60			1.47	1.58			1.55
Ultimate	Car-				83.51 86.71	89.44			83.01 85.96	89.17			84. 19 87. 10
	Hy- dro- gen.				5.19				4.58	4.75			5.13
	Sul- phur.		0.51	488	13821	4.73.73	3,48,8	98.89	22.2	27.7.8	35.55	888	& & &
	Ash.		3.45	3.34	2.94	4.0	4.4.	0 % 0 %	3.48	2.03	2.88	1.95	2.23
Proximate.	Fixed carbon.		76.46	77.17	82. 12 76. 13 79. 05	80.5 80.5	28.52	72.0	77.6 80.4	83.5 72.87 75.63	73.64	78.46 73.12 75.81	73.18
Proxi	Vola- tile mat- ter.		16.2	16.81	17.24	16.0	16.0	16.0	15.5	16.5 21.46 22.28	20.52	21.54 21.45 22.24	22.68
	Mois- ture.		3,89	2.68	3.69	3.6	3.7	3.4	3.4	3.66	3.26	3.55	3.34
	Con- di- tion.		61 6	2-0	100-01	m 01 0	p <del>⊢</del> 01 :	9-010	2-01	≈=010	2-01	m + 01	n – n
Sample.	Kind.		٧	V	V	٧	٧	4		V	4	4	
Ω	Lab- ora- tory No.		7992	7984	7985	8603	8604	8605	8744	8092	8093	8094	8159
	Locality, bed, etc.	WEST VIRGINIA—Continued.  FAYETTE COUNTY—continued.	Dunglen, Dunglen mine—Continued. Same, Fire Creek bed (left entry 1, 600 feet east from drift mouth, 24;-inch cut).	Dunloop, 14 miles southeast of, Dunn Loup No. 2 mine, Sawell bed (right, entry 1 off 4, 3 550 feet	northeast of drift mouth, 692-inch cut). Same (right entry 10, 5,200 feet east of drift mouth, 635-inch cut).	Same (main entry 4,000 feet from drift mouth, 681-inch cut).	Same (right entry 2, 2,000 feet from drift mouth 2, 694-inch cut).	Same (right entry 1 off entry 4, 3,600 feet northeast of drift mouth, 641-inch cut).	Same (composite of Nos. 8603-8605)	East Sewell, Brooklyn mine, Sewell bed (left heading 2, 50-inch cut).	Same (straight entry 7, 45-inch cut)	Same (right block entry 1, 44}-inch cut)	Same (composite of Nos. 8092-8094)

916	916		:		917	917	216	216	216	917	918	918	818	818	918	919
362	362	362	362				:		:	:			:	•		
15,003	15, 954 15, 440	14,522 15,028	15,692 13,997 14,359	15,642		14,550	15,610			14,650	15,640 14,756 15,129	14,702	750 'OT		14,630	15,680
8,335	8,500 00 00 00 00 00 00 00 00 00 00 00 00	8,068	8,718 7,776 7,977	8,690		8,085	8,670			8, 140	8, 690 8, 198 8, 405	8,440 8,440	0,030		8, 125	8,710
2.6	2.5	2.6	1.7	2.1	3.0	2.6	1.9	2.1	1.7	1.9	1.6	2.2	2.0	2.1	60	2.1
		6.74	6.57	4.84		7.09	4.23			7.04	4.85	6.89			7.30	4.71
		1.34	1.345	1.46		1.56	1.68			1.45	1.55	1.56	1.00		1.52	1.63
		82. 19 85. 06	88.82	87.96		82.43	88.43			82.48 84.86		83.07			82.16 84.93	
			4.73			5.11	5.06			4.79	4.97	4.91	9		4.97	4.95
888	82.23	488	885	55.53	288	55.58 	868	388	3881	37.75	8,8,8;	55.55	5.5.5.	ទំនាំន	588	8888
1.93	2.15	4.23	8.21	5.2	200	3.25	000	3.7		3.52	3.12	2.82	3.0	4.4.	3.47	5.08
74.04	772.83	73.21	68.2 69.96	76.22	73.7	72.2	77.5.7	71.8		2.2.2	75.0	74.07	75.55	73.3	73.20	76.5 76.74 79.13 83.37
20.27	22.54	22.56	21.28	8008	2000	22.0	253.5	283.5	9225	23.5	22.23.	2022	22.0	20.02	2000	23.5 15.32 16.63
3.83	3.2	3.37	2.52	3.2	4.1	3.5	2.7	2.9	2.6	2.8	2.46	3.22	3.1	23	3.3	3.01
	0-1010	2 - C1	∞ <del>-</del> α -	m-010	n-01	10 th ca	en −101	n 01	2000	20-01	m → 01	∞ <del></del> α σ	0-101	2010	2-03	m + 61 m
٧	4	0	0	4	4		∢	4	4		4	4	A	4		V
5329	5432	5453	5480	8140	8141	8190	8008	8069	8244	8287	8216	8217	8704	8705	9147	8346
Same (3,000 feet east of drift mouth, fifth left entry, 472-inch cut).	Same (1,500 feet west of drift mouth, first right entry, 4-foot cut).	Same (run of mine, sample 1)	Same (ran of mine, sample 2)	Edmond, 13 miles from: Keeneys Creek mine, Sewell bed (entry 3 off Virginia entry, 1,700 feet from	drift mouth, 382-neah cut). Same (straight heading 2,600 feet from drift mouth, 372-inch cut).	Same (composite of Nos. 8140 and 8141)	Elmo, Sunnyside mine, Sewell bed (main air course, 35-inch cut).	Same (room on Abraham entry off right entry 4, 32½-inch cut).	Same (4,000 feet N. 60° E. from drift mouth, 32½-inch cut).	Same (composite of Nos. 8068, 8069, and 8244)	Fayette, half mile west of; Newlyn mine, Sewell bed (entry 8, 2,450 feet, S. 45° E. of drift mouth,	Same (crosseut, entry 1, 2,500 feet N. 80° E. from drift mouth, 2-foot cut).	Same (face entry 2, 2,450 feet S. 45° E. from drift mouth, 253-inch cut).	Same (room 8, left entry 3, 1,500 feet from drift mouth, 324-inch cut).	Same (composite of Nos. 8217, 8704; and 8705)	Gentry, Layland No. 1 mine, Fire Creek bed (main entry 5,000 feet east of drift mouth, 39-inch cut).

Table of chemical analyses—Continued.

	ω	Sample.			Proximate.	mate.				Ultimate.				Calorif	Calorific value.	Reference.	nce.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Volatile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy- gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
WEST VIRGINIA-Continued.																	
FAYETTE COUNTY-continued.																	
Gentry, Layland No. 1 mine—Continued. Same (leftentry 9, 3,500 feet cast of drift mouth, 44}-inch cut).	8347	٧	-01	2.44	15.48	76.5	5.58	0.70					1.6	1 · · · · · · · · · · · · · · · · · · ·			919
Same (room 14, left entry 6, 2,400 feet east of drift mouth, 50g-inch cut).	8348	4	n=01	2.95	15.83	80.71 80.71	3.92	288	1 1 0	1 1 0 1 0 0 6 0 0 1 0 0			2.0				919
Same (pillar, room 4, left entry 4, 1,100 feet east of drift mouth, 461-inch cut).	8349	4	n=01	3.24	15.53	78.31	4.92	1.88	1 A 0 1 D 0 0 D 0 0 D 0 1 D 0	0 0 0 0 0 0 0 0 0 1 0 0	7 4, 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		2.1				919
Same (composite of Nos. 8346-8349)	8425		20-0	2.87	15.91 15.41 15.86	76. 91 79. 19	4.81	720	4.96	82.35	1.45	3.73	2.0	8, 067	14,521	-	919
Layland No. 2 mine (main heading, 5,300 feet northesest of drift mouth, 49½ inch cut), Tire creek	8234	¥	m → 01	3.6	16.69 14.5 15.0	83.31 74.9 77.7	7.0	85.85			1.57	3.44	2.7	8, 738	15,728		919
Same (pillar, left entry 5, 2,500 feet west of drift mouth, 46-inch cut).	8235	4	2010	4.4	15.0	75.8	4.3	8.2.2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				3.6				919
Same (left entry 10, 5,200 feet west of drift mouth, 451-inch cut).	8236	V	2000	3.8	16.5	0 25 55 5 25 5 5 br>5 25 5 5 br>5 25 5 5 br>5 25 5 5 25 5 5 5 5	5.2	222					3.0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			616
Same (room 16, right entry 5, 46-inch cut)	8237	4	n c1	3.1	16.5	77.4	5.9	7.22					2.3		· · · · · · · · · · · · · · · · · · ·		919
Same (composite of Nos. 8234-8237)	8538		es ← es	4.0	15.5	75.4	5.56	822	70.4	81.47	1.40	.2.55 3.53	2.9	7,935	14, 280 14, 880		919
Layland No. 3 mine (main entry, 2,400 feet east of drift mouth, 38-inch cut), Tire creek bed.	8350	4	σ-010	2.72	16.5	83.5 75.49	5.49	2.98	10 to 4:	90.11 81.71 84.00	1.55	3.7.20	1.8	8,775	15, 790 14, 440 14, 845		919
\$\frac{1}{2}\$ mile north of, Hemlock mine, Fire Creek bed (main heading, near left entry 11, 45\frac{1}{2}\$-inch cut).	8238	4	200	4.35	17.76 15.33 16.92 16.96	75. 04 78. 45	5. 29	25952	5.13 5.08 4.81 5.08	89.02 85.00 89.97	1.50	88649 88649	3.5	8,740 7,966 8,328 8,815	15,732 14,339 14,990 15,867		920

920	920	920	920	920	920	920		922	825	922	922	922	922	922	922
		i			385	362	362					:	:		
14, 283 14, 755 15, 728		14, 200	13,800	14,368	14,407	14, 258 14, 258 14, 819	15,871	10, 330		14, 150	14,090	14,479	10) (01		14,310 14,870 15,700
7,935 8,197 8,738		8,170	7,970	8,271	8,248	×,7,8	×, ×, ×, ×, ×, ×, ×, ×, ×, ×, ×, ×, ×, ×			7,861	8,140	8,80 9,358 1,358 1,358 1,358	0, (40		7,950 8,260 8,720
61 61 61 61	2.3	2.7	3.1	2.7	4.9	3.1	2.2	2.7	62 .23	2.5	2.6	2.9	1.8	2.0	3.0
				2.01			2.73			2.61		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
				1.44	1.00		64.1	I. 02		1.51	1. 02				
				82, 35			82. 68 85. 07			83.41	08.00				
				4.68	F. 20		4. 75	9,02		4.83	4. 20				
88.	8888	56.6	888	82.62	1.08	2.76	8888	1.08	38.88	86.00	22.52	881.	1.59	1.08 7.7 7.0 8.0 9.0 9.0	1.20
5.99		6.3	8.8	5.7	6.0	6.37	5.45	6.79	6.57	6.89	5.94	4.24	3.7	4.61	5.3
75.7 78.19 83.35	5.83.85 5.42 5.42 5.43 5.43 5.43 5.43 5.43 5.43 5.43 5.43	74.6	74.4	76.2	25.33	25.25.29 2.29.29	74.8	74.79	4.25.75.	77.0	74.03	77.92	76.73	73.25	\$2.25 5.22 5.22 5.23
15.12						16.44 17.09	17.1	15.43		16.45					16.0 16.0 17.5
3.19	3, 35	3.4	3.8	3,49	2.96	3.79	2.8	3.54	2.93	es :	3.83	3.75	2.71	2.86	3.7
H0100H	3 co co s	2-010	0-010	2-010	2-01	n=01	n-01	2-010	m 01	n → C1 (	o ⊶ 61 6	n 01 0	2-01	2000	2-0169
4 4	4	٧	4		₹	4	O	4	٧		4	¥	٧	¥	4
8239	8352	8893	8894	8:121	5419	5420	5575	8176	8200	8410	7923	7922	8124	8125	8650
Same (room 5, left entry 6, 2,500 feet northwest of drift mouth, 444-inch cut).  Same (1,800 feet cast of drift mouth, 44-foot	cut). Same (2,000 feet north of drift mouth, 473-inch cut).	Same (room 5, left entry 6, 2,500 feet northwest of drift mouth, 33-foot cut).	Same (room 1, left entry 12, 3,600 feet northeast of drift mouth, 46½-inch cut).	Same (composite of Nos. 8351, 8352, and 8238)	Same (drift 1, 1,600 feet northeast of drift mouth, left entry 4, 47g-inch cut).	Same (900 feet east of drift mouth, 46-inch cut)	Same (run of mlne)	Glendale, Glendale mine, Fire Creek bed (room 1, right entry 1, off daylight entry, 800 feet	from drift mouth, 49; inch cut). Same (room 2, Beck Burt entry, 1,400 feet north of drift mouth, 4-foot cut).	Same (composite of Nos. 8176 and 8200)	Glen Jean, 4 mile from; Collins mine, Sewell bed (room 14, 14, telt entry 12, 7,000 feet north of drift	mount, 32-nen cut). Same (room 2, right entry 5, off main entry 21, 7,000 feet from drift mouth, 703-inch cut).	Same (pillar 18, right entry 9, off main entry, 3,300 fect from drift mouth, 623-inch cut).	Same (room 2, left entry 2, off entry 21, 4,000 feet southeast of drift mouth, 441-inch cut).	Same (right entry 6, off entry 21, 4,800 feet southeast of drift mouth, 61-inch cut).

Table of chemical analyses-Continued.

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Reference.	Page of this bulletin.		822	922	923	923	923	923	923	923	924	924	924
Refer	Bul- letin No.			-				:				•	
Calorific value.	British thermal units.		14,350 14,870	15, 700 14, 540 15, 023	15, 755			14,830	15,020	14,735	15,725 14,591 15,014	15,658 14,751 15,197	70,000
Calorifi	Calo- ries.		7,970	8,720 8,078 9,346	8, 753			8,240	, 8, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9,	8,186	8,736 8,106 8,341	8,8,8,0 0,00 0,440 0,440 0,00 0,00 0,00	0,000
	Air- dry- ing loss.		2.7	2.3	2.0	1.9	2.0	2.0	2.1	2.0	2.0	2.3	2.0
	Oxy- gen.			5.80	3.18					3.11	3. 22		
	Nitro- gen.		1 1	1.55	1.68					1.56	1.00		
Ultimate.	Car- bon.			82.10	88.97					83.95	89. 60		
נ	Hy- dro- gen.			5.08	5.12					4.84	4.84		
	Sul-		0.55	1.00	1.05	55.00	8888	25.55	37.75	848	2.2.08	2.23	35.63
	Ash.		5.1 5.3	4.5	3.93	2.83	4.38	3.0	0 2 4	3.53	4.0	2.32	4.88
nate.	Fixed car-		74.9	82.0 74.42 76.89	80.64 75.50 77.49	75.80	76.24	77.5	74.7	74.83 76.96	73.94	77. 12	72.32
Proximate.	Volatile mat- ter.		16.5	18.0 17.87 18.46	19.36 18.00 18.48	19.39	16.92	19.0	18.5	19.5 18.87 19.41	20. 14 21. 32 21. 94	22.88 19.97 20.58	21.08 19.96 20.55 21.64
	Mois- ture.		3.5	3.21	2.57	2, 45	2.57	2.7	2.8	2.77	2.82	2.94	2.86
	Con- di- tion.		63	co €3	n − 01	v <sup>i</sup> → 01 0	20-0	2-01	2-01	n €	n 01	e> − 01	2000
Sample.	Kind.		∢		4	4	¥	4	4		٧	4	4
τΩ	Lab- ora- tory No.		8651	8192	8000	8004	8022	8595	8596	8110	7920	7921	8082
	Locality, bed, etc.	WEST VIRGINIA—Continued. FAYETTE COUNTY—continued.	Glen Jean, Collins mine—Continued. Same (left entry 9, off entry 21, 4,000 feet east of drift mouth, 62½-inch cut).	Same (composite of Nos. 7922, 7923, 8124, and 8125).	Nichol mine, Sewell bed (left entry 4, 2,800 feet northwest of slope, 647-inch cut).	Same (right entry 3, 2,300 feet north of slope, 594-inch cut).	Same (main entry, 2,750 feet N. 30° W. from slope, 56½-inch cut).	Same (left entry 5, 2,500 feet from slope, 531-inch cut).	Same (right entry 5, 2,500 feet from slope, 56-inch cut).	Same (composite of Nos. 8000, 8004, and 8022)	Harvey, Harvey mine, Sewell bed (room 14, right entry 19, district 1, 9,000 feet northeast of drift	mouth, 49‡-inch cut). Same (room 1, right entry 10, district 2, 7,000 feet north of drift mouth, 47-inch cut).	Same (room 17, right entry 1, off left entry 4, 8,000 feet south from drift mouth, 5-foot cut).

828	924	924	924	925	925	925	925	926	926	926	926	926	926	927	927	927
-		:			:	-		:	:	:	:				:	
14, 582	15, 642		14,280	15, 580			14.500	15, 720					14,539 14,905	15, 667 14, 657 15, 017	15, 689	
8,101 8,346			7,935	8,655			8,330	8, 730						8,343 143 143 143 143 143 143	-::	
2.1	5.9	2.0	4.0	4.2	e.i ∞	6.3	2.5	2.8	2.3	1.7	23.1	1.9	2.2	1.7	2.0	2.2
3.43	3. 58		9.59	5.61			3.66						2.44			
1.50	1.56		1.38	1, 50			1.50						1.55	1.68		
82,60	88.61		84.30				81.66	88.53	: : :				83.36	89.83		
4.85			5.12				5. 23	27					4.89	92		
1.12	02.20	388	33.53	355	57.73	383	322	82.65	8,58,80	2886	4.86.06	1.92	94			8,557
3.85	0, 00 01 nD	44		4.0	5.3		4. 43	4.57	4 46	3. 83	3.36	5.94	24.4. 25.84.	4.18	5.25	4.69
73.1	672.43 72.73.43 72.73.43	0.83.7	67.2	69.3	72.5 66.7 69.0	69.0		72.5	20.45 76.83 79.37	76.39 78.44	76.58 78.91	74.13	20. 98 75. 16 77. 37	30.88 30.88 30.88	36. 48 30. 04	84. 61 78. 02 80. 31 84. 39
20.11	22.57 22.5 24.0	00101			224.5										292	15.39 16.86 16.61
2.94	7.1	3.2	5.0	3.1	3.5	3.0	es es	3.4	3.2	2.61	2.95	2.68	2.86	2.39	2.74	2.85
- 010	. <del></del>	2-010	n – α		eo ← e4 e	. — α <sub>1</sub>		∞ <del></del> - 0.		. → e1 e	m-1010	2-010	2-010			∞ –101 <b>0</b> 0
	4	٧	:	V	¥	¥	:	4	¥	4	A	4		4	4	4
8164	8179	8178	8288	8903	8904	8905	8937	8028	8090	8095	8091	808	8163	8073	8074	8075
Same (composite of Nos. 7920, 7921, and 8085)	Hawks Nest, 1 mile east of; Mill Creek mine, Sewell bed (room 6, near left entry 1, 1,000 feet from drift	mouth, 24-too cut). Same (main entry eroseut, 1,400 feet southeast of drift mouth, 304-inch cut).	Same (composite of Nos. 8178 and 8179	Herberton, Herberton mine, Eagle or No. 1 Gas bed (pillar right entry 1, 400 feet north of drift	mouth, 473-inch cut). Same (main entry, 1,500 feet northwest of drift mouth, 432-inch cut).	Same (room 2), left entry 1, 1,200 feet west of drift mouth, 49-inch cut).	Same (composite of Nos. 8903-8905)	Klisyth, Kilsyth mine, Sewell bed (room 7, right entry 13, 3,000 feet southwest of drift mouth, 651-	Much Chain entry 2, 5,000 feet S. 11° W. of drift mouth, 704-inch cut)	Samo (left entry 14, 4,500 feet S. 13° E. of drift mouth, 523-inch cut).	Same (left entry 12, 5,500 feet S. 13° E. of drift mouth, 614-inch cut).	Same (room 11, dip entry 1, 4,500 feet S. 60° W. of drift mouth, 622-inch cut).	Same (composite of Nos. 8058, 8089–8091, and 8095).	Laurel Creek. Laurel mine, Fire Creek bed (left straight heading 1, 33-foot cut).	Same (left heading 7, 45½-inch cut)	Same (right heading 12, 34-foot cut)

Table of chemical analyses—Continued.

suce.	Page of this bulletin.		927	927	927	927	927	927	927	927	928	928	928
Reference.	Bul- letin No.		0 0										0 0 0 0
Calorific value.	British thermal units.		14,370	15, 690 14, 501 14, 900	15, 694				14,069	15,734 14,445 14,971	15, 721		
Calorifi	Calo- ries.	1	7,980	8,720 8,056 8,278	8, 719				7,816	8,741 8,025 8,317	8, 734		
	Air- dry- ing loss.		2.9	2.0	3.0	3.6	2.4	3.0	33	2.7	4.3	2.9	2.6
	Oxy- gen.		0 0 0 0 0 0 0 0	4.69	2.47				6.53	3, 15 5, 86 2, 83	2.97		
	Nitro- gen.		0 0 0 0 0 0 0 0	1.41	1.53				1.32	1.32	1.44		. 0 0 0
Ultimate.	Car-		: : : : : : : : : : : : : : : : : : :	83.55	90.44				80.10	89.57 82.64 85.65	89.94		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
D	Hy- dro- gen.		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4.84	4.92				4.99	5.07 4.99	5.01		0 0 0
	Sul- phur.		0.50		222	8555	28.E	5688	8.88	.73 .63 .61	40°58	8.88	28.88.8
	Ash.		4.8 5.0	4.92	6.06	6.56	4.78	4.38	6.41	4.60	7.40	8.57	8.49
nate.	Fixed car-		75.5	76.91	83.24 73.81 76.89	82.07 73.70 77.02	75.37	75.56	72.86	81.48 75.16 77.89	81. 79 73. 09 76. 93	83.43 72.46 75.15	25.25 26.05 26.02 26.02
Proximate.	Vola- tile mat- ter.		16.0	17.0 15.48 15.91	16.76 16.13 16.80	17. 93 15. 44 16. 13	16.56 17.12	16.30	16.56	18.52 16.73 17.34	18, 21 14, 52 15, 28	16.57 15.39 15.96	17.52 14.70 15.20
	Mois-		3.7	2.69	4.00	4.30	3, 29	3.76	4.17	3.51	4.99	3.58	3.31
	Con- di- tion.		-13	20 21	0-0	m 01	m-01	m-010	2 m c	e → 61	m → c1	8-8	m=0100
Sample.	Kind.		4		4	¥	4	4			4	¥	4
202	Lab- ora- tory No.		8892	8119	8168	8198	8177	8212	8407	8408	8197	8214	8215
	Locality, bed, etc.	WEST VIRGINIA—Continued.	Laurel Creek, Lourel mine—Continued. Same (left heading 1 off main heading 12, 4,000 feet northeast of opening, 44½-inch cut).	Same (composite of Nos. 8073, 8074, and 8075)	Lawton, Greenwood mine, Fire Creek bed (cross-cut, Valentine entry, 1,100 feet south of drift	mouth, 50-inch cut). Same (room 6, right entry 2 off Valentine entry, 462-inch cut).	Same (right entry 2, off entry 7, 3,600 feet northwest of drift mouth, 464-inch cut).	Same (Moss's entry, 5,700 feet northwest of drift mouth, 514-inch cut).	Same (composite of Nos. 8168 and 8198)	Same (composite of Nos. 8212 and 8177)	4 mile from; Quinnimont mine, Fire Creek bed (left entry 1, off right entry 2, 900 feet north of	drift mouth, 44½-inch cit).  Same (break-through between right entry 2 and air course, 3,000 feet northeast of drift	mouth, 444-inch cut). Same (break-hrough, right entry 2.2,000 feet northwest o idrift mouth, 49-inch cut).

87.6	920	920	929	660	930	930	930	930	930	:	930	930	930	930	2562
		:	0 0 0	:	:			336	336	306				:	
13,846 14,425 15,773		14,680 15,200	15,560 14,728 15,266	15,577 14,380 14,860	15,530			15,399 14,773 15,271		14, 425	15, 674			14,760	15, 705
7,692 8,014 8,763		8, 155	8,88 8,182 481 481 481 481 481 481 481 481 481 481	8,255	8, 630		7,948	8,555 8,207 8,484	8,700	8,014	8,708			8, 200	8, 725
60	2.6	2.5	2.5	2.2	3.0	2.2	2.6	2.5	2.8	23	2.8	2.3	23	2.4	1.9
2.28				4.70			7.14	4.13		6.08	3.74			5.89	
1.46				1.52	1.59		1.53	1.59		1.57	1.71			1.56	
79.05 82.35 90.04				81.34	87.84		82.06 85.22			81.64 84.13				84.11	89. 49
4.56				5.05	5.07		5.14	5.09		4.81	4.87			5.01	4.94
818.	R300 8 R	55.55	525.53	× 4.5	828	#25.52 1.13.5	288	82.23	3888	9.85	727.72	5888	3883	2.2.8	8288
8.20	ია 4.4 იი ∞ ი	253	1.93	4.17	4.15	2.67	3.39	2.54	2.55	5.01	2.55	2.62	3.15	2.88	3.29
73.73	68.9 74.0 69.9	76.0	76.0	76.03	70.07	73.86 69.75 72.07	74. 12 69. 37 72. 04	74.67	72.83	69.29	75.30	28.52 28.52 59.52 59.52	28.58.5 28.83.5 58.83.83	76.46	81.35 75.14 77.03
14.06 14.65 16.02	22.5.0 22.5.0 22.5.0 0 25.0 0 25.0	23.25	22.66		25.01	26.14 25.17	25.53	22.33 22.33 30.30	22.22.23	3.22.4	18.96 19.61	18.22	17. 52	17.53	20.05 20.05
4.01	3.6	3.4	3.52	3.2	4.03	3.22	3.71	3.26	3.51	2.96	3.32	2.98	3.02	3.22	2.45
-000	-000-0	100-01	m – m	m 01	n-01	n=010	200	m <del></del> 03 c	2-121	200	n=01	3-C) (	2-01	2-0	m → 01 m
<u>i</u>	4 4	4	4		<	4		4	4	C	<	4	4		4
8299	8140	8156	8609	8194	8135	8136	8189	2359	2360	2549	7987	7993	7999	8112	7986
00	Lookout, 8 miles east of Nuttall; Blume mine, Sewell bed (fight entry 10, 4,000 feet from drift mouth, 394-inch cut).  Same (man straight entry, 4,500 feet from drift mouth, 344-inch cut).	Same (right entry 1, off left entry 4, 1,500 feet from drift mouth, 37-inch cut).	Same (right entry 1, off left entry 4, 1,500 feet from drift mouth, 374-inch cut).	Same (composite of Nos. 8149 and 8150)	Lookout mine, Sewell bed (left entry 1, 600 feet from drift mouth, 34-inch cut).	Same (left entry 2, off straight entry, 1,300 feet from drift mouth, 323-inch cut).	Same (composite of Nos. 8135 and 8136)	Macdonald, Macdonald mine, Sewell bed (7,720feet from drift mouth, room 11, left entry 18, 60%-inch	Same (7,600 feet southwest of drift mouth, room 16, right entry 16, 563-inch cut).	Same (run of mine)	Same (left entry 19, 7,000 feet west of drift mouth, 661-inch cut).	Same (cross entry 17 off left entry 18, 6,000 feet southeast of drift mouth, 56½-inch cut).	Same (pillar, right entry 11, 4,200 feet S. 10° W. of drift mouth, 681-inch cut).	Same (composite of Nos. 7987, 7993, and 7999)	Sugar Creek mine, Sewell bed (room 4 on aircourse, 2,200 feet west of drift mouth, 56½-inch cut).

Table of chemical analyses-Continued.

	00	Sample.			Proximate.	nate.			D	Ultimate.				Calorifi	Calorific value.	Reference.	once.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy- gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
WEST VIRGINIA-Continued.																	
FAYETTE COUNTY—continued.																	
daodonald, Sugar Creek mine—Continued, Bame (entry 3, 1,000 feet east of drift mouth, 57- inch cut).	2662	4	-010	4.09	18.10	74.77	3.04	0.77					3.4				932
Same (room 32, left entry 4, 2,400 feet west of drift mouth, 564-inch cut).	7997	V	2-010	5.50	16, 57	74.38	3.55	3383					4.9				932
Same (room 14, off left entry 1, south of drift mouth 300 feet, 572-inch cut).	8298	4	: : : : : : : : : : : : : : : : : : : :	4.4	19.50	72.8	4. 4. w 70	5228					3.6	7,945	14, 300		932
Same (composite of Nos. 7986, 7996, and 7997)	8105	:	n ⊣ 0	4.04	18.99	79.5 74.43 77.56	3.45	8.8.8	5.00	82, 92 86, 41	1.38	3.23	3.4	8,695 8,039 8,377	15,660 14,470 15,079		932
Winden, Minden No. 2 mine, Sewell bed (left air course 19, 3,200 feet S. 60° E. of drift mouth, 477-	8024	4	en − 00 e	3.09	22. 80 22. 80 22. 80	80.33 69.73 71.96	5.08	20.03	4.91	89. 49	1.38	35	4.2	8,676	15,617		932
Same (left entry 1, 3,000 feet S. 60° E. from drift mouth, 494-inch cut).	8025	₹	2-101	2.61	8888	73.84	3.28	1.325					2.0				932
Same (right air course 6, 2,800 feet N. 60° W. from drift mouth, 62‡-inch cut).	8026	<	2-01	2.79	25.53	72.12	4.48	1444									932
Same (left entry 4, 2,100 feet southeast of drift mouth, 59-inch cut).	8881	<	20 H CO	4.	20.5	75.2	01 00	388					2.7	8, 150	14, 670		932
Same (left entry 7, 1,600 feet from drift mouth, 603-inch cut).	8882	¥		3.1	22.22	0.0.4.1	6.6. 4.0	388					2.5	8,8,8,8,8,9,8,9,8,9,8,9,8,9,9,9,9,9,9,9	14,720		932
Same (composite of Nos. 8024, 8025, and 8026)	8107			2.90	22.57	73.31	4.35	1.72	4.94	82. 15 84. 61	1.56	5.34	2.3	8,074	14, 533 14, 967		932
Minden No. 3 mine, Sewell bed (left entry 7, 3,000 leet east of drift mouth, 532-inch cut).	8027	4	n → 01 m	2.48	23.38	76.75   71.16   72.98   76.52	4.52	11.12	4.98	88.58	1.69	2.96	1.9	8,705	15, 669		933

933	933	933	933	933	933	933	933	934	934	934	934	i	į	i	i	935
												362	362	362	362	
	14,816	5,730	15,060 15,062	15, 685			14,785	5,003			14,848	15,745 14,009 14,564	15,809	15,813 13,817 14,650	15,736 14,391 15,293	15,874 14,465 14,819 15,545
	231	8,8,8,9 5,00 1,00 1,00 1,00 1,00 1,00 1,00 1,00	368	714			8,214	080								88,819 8,233 8,636
2.5	2.0	1.6	22	2.6	2.3	2.0	23.3	1.9	2.0	2.0	2.0	3.0	2.9	4.9	5.1	1.6
			3 58				3.49				5.17	3.6.5 4.75 4.75	3.76 6.10 2.89	3.08	808	4.15
			1.50	1.60			1.65	0			1.54	1.59 1.31 1.36	1.39	1.53	1.38	1.15
			82. 66 85. 12				83.87				34.27	20.35 20.02 14.02	30.16 30.86 30.99	89.47 79.95 84.78	5. 45 5. 45 5. 49	88.74 79.85 81.81 85.82
			4.88	- : :			5.02	2 : :			070 80	281	95 18 96	82 E8	228	5.01 5.09 7.94 6.18
7.0	27.28	1.05	1.09	1.14	38.8°	328	35,151	58.28	27.73		1.10	 	588	.54	25.55	
3, 13	2.77		3.86	2.05	2.85	3.02	2.64	2. 69	3.97	2.23	3.03	7.58	5.89		3.66	
55.95		6 - 9 c	4.74	-				6.30	:	. 4.65 88.85 8.85 8.85 8.85 8.85 8.85 8.85		i	50.09 8.09 8.09 5.09	7.55	6.67 9.81 4.18	62.83 65.91
10011	2222	# 20 0 C	29	2008	1#00 00 00 00 00 00	57	2000	969	1252	333	1989	16388	988	535	1853	32.50 6 34.09 6
3.21	2.95	2.5	2.88	3.26	2.96	2.61	2.89	2.61	2.68	2.74	2.75	3.80	3.73	5.70	5.90	2.39
-1030	2-1030		2-03	es → es e	2-101	2-010	; n → 03 c	2-0	n-010	о <del>н</del> оз о	20-01		n − 03	e − 63		m=0m
4	4	4		4	4	4		4	4	V		Ö	O	Ö	0	. 4
8028	8381	8880	8240	8020	8030	8031	8102	8032	8033	8034	8101	5774	5775	5776	2777	6932
Same (right air course 8, breakthrough 1, 50- inch cut).	Same (crosscut, right entry 5, 2,400 feet west of drift mouth, 55-inch cut).	Same (room, Jeft entry 4, 1,300 feet southeast of drift mouth, 44-foot cut).	Same (composite of Nos. 8027 and 8028)	Minden No. 4 mine, Sewell bed (left entry 4, 3,000 feet N. 82° W. of drift mouth, 50-inch cut).	Same (room 5, right entry 9, S. 82° E. from drift mouth, 524-inch cut).	Same (main entry, 5,000 feet N. 82° E. from drift mouth, 47½-inch cut).	Same (composite of Nos. 8029-8031)	Minden No. 5 mine, Sewell bed (left entry 6, 1,500 feet northwest from drift mouth, 53-inch eut).	Same (right heading 7, 850 feet northeast of drift mouth, 394-inch cut).	Same (main heading, 4,000 feet north of drift mouth, 504-inch cut).	Same (composite of Nos. 8032-8034)	Operator's shipment from mine working Fire Creek and Sewell beds, run of mine		Same (sample 3)	Same (sample 4)	Fage, 14 miles N. 65° E. of, Eagle mine, Eagle or No. 1 Gas bed, 800 feet north 68° E., 250 feet to dip of alrway room 10 off alrway 8, 594-inch cut.

Table of chemical analyses—Continued.

	22211223		
ence.	Page of this buille-tin.	936 936 937 937 937 937 937 937 937	838
Reference.	Bul- letin No.	83.30 89 89 89 89 89 89 89 89 89 89 89 89 89	290
Calorific value.	British thermal units.	14, 587 14, 587 14, 985 14, 939 14, 939 15, 510 14, 110 14, 110 15, 521 15, 521	14, 436 14, 998 15, 631 14, 210 14, 550 15, 540
Calorifi	Calo- ries.	8,8,8,7,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8	8, 020 8, 332 8, 135 8, 135
	Air- dry- ing loss.	0 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.6
	Oxy-gen.	10.65 6.65 6.65 6.65	8.07 6.5.15 6.83 6.83 6.83 6.83 6.83 6.83 6.83 6.83
	Nitro- gen.	11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	1.32
Ultimate.	Car-	88.79 87.78 87.74.73 86.24.73 86.24.73 86.24.73 86.24.73	80.50 83.63 87.17 79.73 87.23
P	Hy- dro- gen.	5.05.0 5.05.0 5.00.0 5.00.0 5.00.0 5.00.0 5.00.0	5.31 5.34 5.34 5.17
	Sul-	2111111411111111	1.40 1.51 1.51 1.00 1.00
	Ash.	44 66 6 2 2 2 2 7.7 7.7 6 2 2 2 2 2 2 4 2 2 2 2 2 2 2 2 2 2 2 3 3 2 2 2 2	4.41 4.54 4.06 4.06 5.60 5.77
nate.	Fixed carbon.	5988288838883888388838888388888888888888	61.37 63.15 66.15 61.31 63.69 66.39 63.4
Proximate.	Volatile matter.	#2222222222222222222222222222222222222	31.40 32.31 33.23.31 33.04 33.05 30.55 30.55
	Mois-	2	3.0
	Con- di- tion.		-00-00-00
Sample.	Kind.	4 4 4 4 0 4 4	4 0 4
, võ	Lab- ora- tory No.	5439 6933 1869 2178 2004 1867	2028
	Locality, bed, etc.	WEST VIRGINIA—Continued.  FAVETTE COUNTY—continued.  24 miles N. 65° E. of, Ansted mine, No. 2 Gas bed (1,00) feet brithess; color size opening, room 16 off entry 3, 8 feet 114 inches; cut 5 feet 2 inches).  Same (1,50) feet N. 65° east, room 22 off entry 6; thickness of bed, 9 feet 5§ inches; sample, 8 feet 5§ inches; annple, 8 feet 5§ inches, 1 mine, Eagle bed (lower bench).  Same (middle bench).  Same (No. 8 airway, 1,100 feet from opening, 60-inch entr).  Same (run of mine).  Same (to of mine).  Same (upper bench).	Same (No. 6 entry, 500 feet east, 100-inch cut)  Same (run of mine)  Paral, \$\frac{1}{2}\$ mile northwest of; Beech Creek mine, Eagle 373-inch cut, 2, 900 feet from drift mouth, 373-inch cut).

686 686	939	940	940	940	040	941	941	941	346	576
262 65 84 84 84 84 84 84 84 84 84 84 84 84 84									362	362
14, 738 15, 035 15, 637 13, 925	15,586	14,877	15, 737 14, 240 14, 809 15, 615	14,686		14, 256 14, 827 15, 644			14, 112 14, 893 15, 674 14, 954	15, 383 14, 663 15, 003 15, 890
8, 188 8, 353 8, 687 7, 736 8, 687	8,659	8, 265 8, 484	8,743 8,227 8,675	8, 159 8, 648		7, 920 8, 237 8, 691			8,274 8,778 8,308	8,546 8,146 8,335 8,828
3.1	1.4	1.8	2.6	2.9	2.3	% ≪ ∞ ≪			1.9	1.3
00 H		5.22				3.61			7.38 2.87 3.02	
	1.77	1.45	1.54			1.48			1.34	
76.89	86.06	86.69	89.33			80.72 83.95 88.58			80. 64 85. 10 89. 56	
10,		5.10				5.11			5.06 4.98	
885 777 777 777 777	1.01	88888	8888	88.88	1.35	.87	1.31	86.65	86.98 196.02	54.89
3.76		22 22 25 28 52 98 98		5.65	5.05		6.38	3.86		3.01 5.46 5.59
HH2824E	93 93 67. 84 77. 55 80.	46 00 78. 01 75. 77.	28 74. 28 74.	55 55 72.77. 01	75 75 75 75 75 75 75 75 75	93472	818 16 16 17 17 17 17 17 17 17 17 17 17 17 17 17	36 79 62 74 12 76	25 73 73 75 75 75 75 75 75 75 75 75 75 75 75 75	2.27 19.36 77.63 3.01 72 74 74 2.27 19.96 80.04 60.00 60.00 73.41 6.39 61 61 22.24 77.76
1. 98   34. 35. 1. 77   32. 1. 77   33. 4. 08   28.		2. 86		4. 47 20 21 22 4. 08 19	3.18 20.20.20.20.20.20.20.20.20.20.20.20.20.2	3.85	3.15 18.		5.24 16	2.27 20.
-ann-ann-	00 m 00 00	HORM	10-00	-0.00	M W H W	es ← es es	-000-0	10-00		-000+000
4 4 0	<	4	4	4 4	4		4 4	4	:	4 4
1208	7989	7990	7915	7916	8219	8301	8002	8003	8118	5397
Poweliton, 3 miles south of; Vulcan mine, Poweliton bed (extreme south side, 6]-foot bed, 53-foot cut). Same (extreme north side, 61-inch bed, 53-inch cut).	Price Hill, Sherwood mine, Sewell bed (main west on- try, 3,500 foet southwest of shaft, 41-inch cut).	Same (2.500 foet southwest of shaft, left entry 5, 434-inch cut). Same (composite of Nos. 7989 and 7990)	Prudence, Prudence mine, Sewell bed (main entry, 1,200 feet east of drift mouth, 62-inch cut).	Same (main aircourse, 2,000 feet east from drift mouth, 643-inch cut).	Same (telebrary s, others, oth	603-inch cut). Same (composite of Nos. 7915, 7916, 8218, and 8219).	Redstar, Laura mine, Sewell bed (left air course 4, 2,700 foot east of drift mouth, 64-inch cut).  Same (room 7, left entry 5, 2,800 foot southeast	of drift mouth, over-near each.  Same (pillar 2, left entry 2, 1,800 feet southeast of drift mouth, 594-inch cut).		Star mine, Swell bed ('5001 leet Sollthwest or universal month, room 16 on right entry 18, 454-inch section, 434-inch cut).  Same (6,700 leet south west of drift mouth, room 12 on leit entry 13, 634-inch cut).

a Sample 8001 very wet on account of water where it was taken.

## Table of chemical analyses-Continued.

Reference.	Page of this bulletin.				942	942	942	942	942	943	943	943	943
	Bul- letin No.		362	362					:		;		
Calorific value.	British thermal units.		14,783 15,098	15, 721 14, 596 14, 949	15,779		14,880	15,730	14,801	15,671 14,450 15,010	0,0,6T		14,550 14,970 15,730
	Calo-		8,213	8, 734 8, 109 8, 305	8,766		8, 265	8,735	8, 223 8, 461	8, 335 025 335 335	8, (8)		8,085 8,320 8,740
	Air-dry-ing loss.		1.5	1.8	2.2	1.7	2.0	1.7	2.0	2.9	2.1	2.2	1.9
Ultimate.	Oxy-		9.40	2000	3.47				6.02	3.71			
	Nitro-gen.		1.33	2998	1.51				1.58	1.68			
	Car-		79.61	84. 67 82. 53	89.21				84.04	88.98			
	Hy- dro- gen.		4.88	4. 4. 4. 4. 88. 52	4.99				5.05	5.02			
	Sul-		0.89	95.22	52.53	38.89	.55	1.15	59	19:00:00	3.4.4.	3:8:5:	5885
Proximate.	Ash.	,	3.89	5.14	3.20	2.46	2.6	4.4.	2.74	1.4.	20.03	લલ	4.7
	Fixed carbon.	\$257872828888888888888888888888888888888											
	Vola- tile mat- ter.	20020000000000000000000000000000000000											
	Mois- ture.		2.09	2.36	2.71	2.46	2.8	2.4	2.81	3.7	3.0	3.0	2.8
Sample.	Con- di- tion.		- 6	es e	30 H C3 C	2 H C1	20 63	0 H 01	20-02	m-010	m-01	20-03	m 01 m
	Kind.		C	Ö	4	4	4	4		¥	4	4	4
	Lab- ora- tory No.		5489	5574	7988	7991	8656	8657	8296	8891	8285	8284	8286
	Locality, bed, etc.	WEST VIRGINIA—Continued. FAYETE COUNTY—continued.	Redstar, Star mine—Continued.	Same (run of mine, sample 2)	Same (right entry 21, 9,000 feet northeast of drift mouth, 431-inch cut).	Same (room 15, left entry 16, 7,500 feet southwest of drift mouth, 49\frac{1}{2}-inch cut).	Same (room 22, right entry 18, 62½-inch cut)	Same (main entry, 10,800 feet N. 44° W. of drift mouth, 53-inch cut).	Same (composite of Nos. 7988 and 7991)	Robins, Export Mine, Fire Creek bed (right entry 9, 43t-inch cut).	Same (main entry, 1,600 feet from drift mouth, 304-inch cut).	Same (left entry 1, 200 feet from main entry, 23-inch cut).	Same (right entry 9, 500 feet from main entry, 44-inch cut).

943	944	944	945	945	945	946	946
261 261 261 261 261 261					0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
14,970 15,400 15,400 14,900 15,221 15,733 14,807 15,037	15,028 11,028 113,625 14,668	15,599 14,371 14,953	15, 599 14, 877 15, 635 14, 776		15, 640 14, 258 15, 030 15, 748		14, 738 15, 250 15, 595
	8,7,8,80 7,7,89,349 8,7,764		8,7,8,8,7,8,0 7,781 8,686 100 100 100 100 100 100 100 100 100 10		8, 690 7, 921 8, 350 8, 749		8, 188 8, 472 8, 664
2.2	3.5	3.0	4.9	1.9	2.5	2.6	2.5
2.2.2. 7.7.2. 7.7.7. 7.8.99 8.88 8.88		7. E. 20.	4.01		7.84 3.46 3.62		3.62
1.688	D8:1	1.4.1	1.53		1.52 1.60 1.68		1.59
85.24 90.04 90.04 82.87	88.70	881.59 84.89			80.58 84.94 89.00		84. 12 87. 04 89. 02
5. 10 5. 05 5. 05 7. 4. 76 4. 76	4.91	4.97	4.92		5.01 4.68 4.90		5.11 4.90 5.01
82887388758888		22.08.6.2.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.	28.288.88		1.60 .72 .76 .80 .85	200000000000000000000000000000000000000	557.55
2.2. 3.5. 5.8. 3.5. 5.4.0 8.5. 6.0.8. 3.5. 5.1.3. 5	3.67 3.83 5.68 5.96	2.35 2.41 3.98 4.14	4.84 4.84 4.99 5.33	3.19 3.28 7.5	4.33 4.56 2.03 2.10	1.83 1.90 2.25 2.33	2.15
78.22 77.5.34 77.5.34 77.5.34 77.5.97	22.34.31 22.34.31 32.34.35	74.88	77.77.77.77.77.77.77.77.77.77.77.77.77.	76.42 76.42 70.8 72.9	78.5 72.77 76.71 80.37 73.56	77.81	77.90
16.5 17.5 17.5 17.5 22.65 22.67 22.67 23.16 22.67 22.67 22.67 22.67	20.25 20.25 20.25 20.25	20.28 20.28 20.28 19.18 19.19	18.82 19.83 19.99 17.78 19.00	18.20 18.82 19.5 19.5	21.5 17.77 18.73 19.63 20.98	22.22.23	21. 25 21. 25 21. 99 22. 49
2.29	4.19	3.89	5.86	2.68	5.13	3.23	3.35
			2-00-01				
4 4 0	4 4	4	4 4	4 4	₹	4 4	
1175 1176 1176	7895	8128	7906	8126	8183	8152	8185
Same (composite of Nos. 8284 and 8285)  Bush Run, Rush Run mine, Fire Creek (Quinnimont) bed (room 10 off left entry 10, 55-foot cut).  Same (room 22 off right entry 9, 5-foot cut)	Scarbro, Scarbro mine, Sewell bed (main southwest entry, 4,500 feet southwest of shaft, 544-inch came (ut). Same (right entry 3 off main north, 3,500 feet northeast of shaft, 524-inch cut).	Same (pillar 2 off right entry 2 off main northeast entry, 4,000 feet east from shaft, 43-inch cut).  Same (composite of Nos. 7895, 7896, and 8128)	1 mile from; Wingrove mine, Sewell bed (right entry 5, 2,500 feet northeast of shaft, 64-inch Same (leftentry 4, 2,500 feet northwest of shaft, 64-inch cut).	Same (pillar, main west entry, 2,600 feet west of shaft, 5-foot cut).  Same (right entry 3 off main northwest entry, 2,000 feet from shaft, 58-inch cut).	Same (composite of Nos. 7906, 7907, and 8126)  South Caperton, Southside mine, Sewell bed (straight entry, 5,000 feet from drift mouth, 40g-inch	Same (left entry 5, 7,000 feet from drift mouth, 58g-inch cut).  Same (machine entry, 6,000 feet from drift mouth, 4-foot cut).	Same (composite of Nos 8151-8153)

Table of chemical analyses-Continued.

	Sa	Sample.			Proximate.	nate.			n	Ultimate				Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Volatile matter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro-gen.	Oxy-gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulletin.
WEST VIRGINIA-Continued.																	
FAYETTE COUNTY—continued.							_										
South Nuttal, Brown mine, Sewell bed (Wheeler entry, 3,500 feet from drift mouth, 381-inch cut).	8142	¥	=00	3.2	22.5	73.4	1.9	0.50					2.2				946
Same (entry 18, 1,000 feet from drift mouth, 38- inch cut).	8143	4	2-101	8	000	74.1.8	1.9	54.02					2.6	8,240	14,830		946
Same (Old Locketto entry, 4,000 feet from drift mouth, 421-inch cut).	8144	4	2 H CZ	3.6		13:30	1.9	515151					2.7	8, 030	050, 61		946
Same (left entry 1, 1,800 feet from drift mouth, 36g-inch cut).	8145	4	2-01	83		73.1	6.65	386					2.3				946
Same (entry 18, 1,000 feet from secondary open- ing, 414-inch cut).	8607	A	2-010	3.4		72.0	2.6	0.00.00					2.5	8, 180	14,730		946
Same (composite of Nos. 8142, 8144, and 8145)	8196			3.3		74.5	2.43	388	5.22	84.36	1.54	5.87	2.4	8,700	15,660 14,780 15,280		946
Stone Cliff, Stone Cliff mine, Fire Creek bed (room 5, leftentry 1 of main entry, 1,400 feet west of	7995	4	es <del></del> es e	2.80		76.5	5.49	244	5.14	89.46	1.63	3.15	1.9	8,710	15,680		2+6
arnt mouth, 40, 1-nen cut). Same (room 1 right entry 1 off main, 1,500 feet north from drift mouth, 621-inch cut).	1998	4	n −1 €1	2.44		72.71	6.42	500.00					1.9				947
Same (composite of Nos. 7995 and 7998)	8250	:	20-0	2.63		75.48	6.08	. 46	4.84	82.08 84.30	1.33	2.96	1.9	7,934 8,148	14,281	:	947
Stuart, Stuart mine, Sewell bed (left entry 4, 2,500 feet northeast of shaft, 4514-inch cut).	7872	4	07 m	2.84	23. 46 23. 46	73.81	2.65	56.40	4.98	89.91	1.45	3.16	1.8	8, 689 8, 177 8, 416	15,640 14,719 15,149		948
Same (left entry 1, 1,500 feet northeast of shaft, 55-inch cut).	7873	4	0 - 01 60	3.78		72.71	2.31	52.52					2.0		14,702		948

948	949	949	676		949	949	949	<b>6</b> 76
			E 61 85 85	87				
14, 663 15, 178 15, 626 14, 926 15, 309		14,910 15,320 15,730 14,778 15,170		14,382 14,972 15,781				
8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8	8,143	8, 2510 8, 210 8, 210 8, 210 700 700		8,73 8,318 707 707				0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2.3	2.5	2.0	1.7	63 63 63			00	2.1
3.58		3.76 3.88 88		8.52 5.23 5.52				
1.53		1.57	1.48	1.05				
83.48 86.41 88.96		88. 71 88. 72		79. 78 83. 05 87. 54				
5.15		6.13 1.07 1.33		4. 60				
52 66 66 64 64 64 64 64 64	12222222	544472	11.11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	1.222.	1.15 1.26 .87 .89	11.58	22.2.2.2.2.2.3.3.3.3.3.3.3.3.3.3.3.3.3.	28883
25. 19.17. 19.27 19.27. 19.27. 19.29.	3.04 3.15 3.27 3.34	3. 2.5 3. 05 3. 13	3. 55 8. 55 8. 55	8. 94 8. 94		5. 28 5. 44 6. 52	6. 66	5.81 5.96 4.50 4.64
71.25 73.48 76.04 77.35 77.10 77.10 74.87	6.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5	77.73.64.08	72.592	76,95 71,25 74,17 78,18 68,27	70.07 77.15 77.81 81.20	73. 69 76. 00 72. 47	73. 98 74. 08 75. 21 75. 21	74.69 75.88 75.88 78.89 78.89 78.89 78.89
22:22:23:25:25:25:25:25:25:25:25:25:25:25:25:25:	22.22.23.11 22.22.23.23 22.33.23.23	22.55 22.55 22.55 22.55 22.55 23.55	22.22.22 22.23.23 22.73	20.23 20.70 20.23 20.23 20.23	20.75 22.85 17.60 18.02		20.74 19.46 19.76	16.91 17.36 16.55 16.55 17.08
3.03	3.40		2. 48	3.94		3.03	1.51	3.08
						) H (40) H		
4 4	4 4	4	4 4	0 0	4	4 4		4 4
8079 8158 7875	7874	8967	1197	1595 1609A	8099	8206	8208	8209
Same (right entry 3 off main east entry, 1,200 feet southeast of shaft, 344-inch cut).  Same (composite of Nos. 7872, 7873, and 8079)  anile from: Parral mine, Sewell bed (left entry 1, 2, 2, 2, 2, 2, 2, 2, 3, 3, 3, 3, 4, 3, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,	Inch cut.) Same (right entry 3, 2,600 feet northwest of shaff, 31-inch cut). Same (left west entry 2, 1,800 feet southwest of shaff, 45-inch cut).	Same (left entry 1, on east side, 850 feet northeast of shaft, 48½-inch cut). Same (composite of Nos. 7874, 7875, and 8084).	6un, Sun No. 1 mine, Sewell bed (62-inch cut, left main heading).  Same (main entry of "the Straight" 62-inch	Cut). Same (run of mine, 10 tons)	Same (left air course 9, off main, 3,200 feet S. 85° E. of shaft 2, 59\frac{1}{2}-inch cut).	Same (left entry 7, off main, 2,500 feet S. 60° E. of shaft 2, 6-foot cut).	Jeet N. 20° E. from shaft 2, 584-inch cut). Same (room 15, off right entry 11, off main 3,000 feet N. 60° E. from shaft 2, 524-inch cut).	Same (left entry 3, off Simpsons entry, 2,800 feet south of shaft 2, 68-inch cut).  Same (Tuckers main air course at left 10, 3,700 feet S. 10° E. of slope 1, 604-inch cut).

Table of chemical analyses—Continued.

	σ <u>α</u>	Sample.			Proximate.	nate.			n	Ultimate.				Calorifi	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul- phur.	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy- gen.	Air- dry- ing loss.	Calo-	British thermal units.	Bul- letin No.	Page of this bulle-tin.
WEST VIRGINIA—Continued.																	
Sun, Sun No. 1 mine—Continued. Same (composite of Nos. 8099 and 8206-8210)	8291		100	2.57	18, 15	74.16	5.12	1.26	4.87	82.68	1.38	4.69	1.7	8,063			676
Same (face of Collins heading, off right entry 8).	9614	₹	10m2	6.64	19. 66 18. 73 20. 06	80.34 69.44 74.38	5. 19	2.07	4.4.4.	89.57 78.11 83.66	1.50	28.53	6.0	8, 735 7, 670 8, 215	15, 723 13, 806 14, 787		949
Same (face of Collins heading, off right entry 8).	9615	V	n → 61	2.94	20.24 20.29 20.20	78.76 68.67 70.75	8.96 8.96	1.92	444	88. 59 77. 66 80. 01	::::: ::::::::::::::::::::::::::::::::	25.52	2.3	7,7,8 659 891 891			949
Same (face of Simpson entry)	51	V	es == €1	3.36	22, 29	77.71	3,45	2.5.2.	4.94	87.88	1.64	3.43	2.6	8,8% 8,121,404,404			646
Same	52	4	m → 01	3.80			3.85	388					3.0	8,716 8,049 367			949
Same	20	4	m <b>⊣</b> a	3.21		• • • •	2.83	244					2.4	8, 195 8, 195 8, 467		•	949
Same (composite of Nos. 50-52)	127		m = 01	3, 49			3,38	8:18	4.90	83.15 86.16	1.40	6.40	2.7	8,119			646
Thayer, Ephraims Creek mine, Fire Creek bed (room 1, Slater Hill hanlway, 2,300 feet northeast of	8167	¥	ಣವಣ	4.85	15.96	70.94	8. 25 8. 67	8,29	4.84		1.50	3.54	4.0	8,718			951
drift mouth, 49-inch cut, 2, off left entry 9, 3, 200 feet northwest of drift mouth, 434-inch cut).	8174	4	n → 01	2.87	17. 94	74. 29 76. 49	5.41	34.55					2.2	0 0 0 0 0 0 0 0 0 0 0 0			951
Same (right entry 9, off right entry 2, 3,400 feet north of drift mouth, 412-linch cut).	8175	4	n → 01	3.17	5.45 15.45 19.45	78.36	5.06	S 45 55					2.1		* 0 0 * 0 0 * 0 0 * 0 0 * 0 0 * 0 0	•	951
Same (1,000 feet west of drift mouth, 3-foot cut).	8199	4	2000	3.37	16.54	74.42	5.85	928		* * * * * * * * * * * * * * * * * * *		0 0 0	2.6			•	951

			AN.	ALIX	ES	OF (	UAL	2 17	THE	Ur	TIE	נפ ע	LATE	, .		240
951	951	952	953	953	953	953	953	953	954	954			954	954	954	954
Ī		:	362	362	362	:			362	362	362	362	:	:		
-	14, 216	15, 752	15,820		14,422	16,793 14,368 14,843	15,685 14,369 14,879	14,460	15,740 14,827 15,341 16,058	14,978	14,254	14,519	15, 755			14, 470 14, 868 15, 584
	7, 898	8,8,8,0 10,0	8,730		8,012	8,246 8,246	8,714 8,266		8,8,8,2 921 921	8,321	8,034	8, 8, 8, 8, 8, 9, 8, 9, 8, 9, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	8, 733			8,039 8,260 8,658
2.8	2.7	2.6	23.1	01 01	2.2	2.5	2.7	2.6	2.1	1.9	1.5	1.5	1.9	1.9	1.8	1.9
	12.00						03488					65.39				3.29
	1.65	1. (2			1.62		248					244				1.60
	84.05						84.85 84.85 86.85					82.88 83.88 83.88				82. 78 85. 06 89. 16
	4.69						4.5.4.					4 4 5 4 8 5 5 5 5 5 5 5 5 6 7				5.04
12.80	3533	1888	388	3%33	52.23	323	556	388	2222	883	122	55.52	136	<u> </u>	62.71	3282
6.13	6.38	ा ल	5. 35	6.08	5.63	5.20	4. 48	4.85	4.31	3.58	7. 25	5.92	4.93	4.51	4, 25	4.48
72.34	73.50	78.7	77.38	25.31 25.31 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3	1828	75.14	27.5.22 27.88 27.89	75.30	25.55 25.28 25.28							75.83
17.96	17.88	19.50	17.05	18.85 18.85 18.65	17.32	12.90	17. 96 16. 87 17. 47	16.5	20:30 20:30 20:30 20:30							20. 19 19. 65 20. 51
3.57	3.6	3, 3	2. 79	2.94	3.05	3.20	3, 43	3.3	3.35	2.97	2.04	2.05	2.8	2.8	2.64	2. 68
<b>⊣</b> ⊘10	2-01	0C1C	o 01:	n — 01 °	0 010	2-01	es — es e	o 01 0	n-0100	010	o → 01:	m — c1	m ⊶ 01	es — es e	p 01 0	0-0160
4		<	٧	<		٧	<		4	٧	Ö	C	٧	٧	4	
8213	8290	8600	8240	8241	8300	8242	8243	8289	5327	5328	5436	5438	8096	8097	8100	8160
Same (north entry, 5,000 feet from drift mouth, 421-inch cut).	Same (composite of Nos. 8167, 8174, 8175, 8199, and 8213).	Thurmond, I mile from; Newlyn mine, Fire Creek bed (room 5, on entry 2, 500 feet west of drift	12 miles northwest of Minden No. 1 mine, Fire Creek, bed (pillar, right entry 2, 1,000 feet	from drift mouth, 713-men cut). Same (pillar, left entry 3, 1,200 feet southeast from drift mouth, 653-inch cut).	Same (composite of Nos. 8240 and 8241)	2 miles west of: Echo (Beury) mine, Fire Creek bed (Baitimore heading, left entry 5, 14 miles	from drift mouth, 63f-inch cuc). Same (Echo 2, Klondike drift, left entry 1, 1,900 feet from drift mouth, 51g-inch cut).	Same (composite of Nos. 8242 and 8243)	3 miles northwest of; Rush Run mine, Quinnimont or Fire Creek bed (5,700 feet south of drift mouth, room 18 on tenth right entry, 614-inch	Same (4,500 feet southwest of drift mouth, room 23 on eighth right entry, 61-inch cut).	Same (run of mine, first car)	Same (run of mine, second car)	Same (left entry 7, 65!-inch cut)	Same (room 4, right air course 11, 5,000 feet from drift mouth, 554-inch cut).	Same (pillar, richt entry 7, 3,500 feet from drift mouth, 618-inch cut).	Bame (composite of Nos. 8096, 8097, and 8100)

Table of chemical analyses—Continued.

nce.	Page of this bulletin.		955	955	955	955	926	926	926	956	956	957	957
Reference.	Bul- letin No.												0
Calorific value.	British thermal units.			* 1 · · · · · · · · · · · · · · · · · ·		14,276	15,647				14,816	14,332	15,541 14,191 14,557 15,597
Calorifi	Calo- ries.			* * * * * * * * * * * * * * * * * * *		7,931	8,693		6 0 0 0 5 0 0 0 0 0 0 0 0 0 0		8,231	8, 159	8,634 8,087 8,665
	Air- dry- ing loss.		1.8	3.6	2.1	2.5	2.6	2.6	2.3	2.30	2.5	1.2	1.5
	Oxy-					3.44	3.64				2.96	3.03	
	Nitro-gen.					1.46	1.60				1.41	ne T	
Ultimate.	Car-					81.36	89.18				84. 42	89.77	
1	Hy- dro- gen.					4. 65	4.93	0 0 0 0 0 0 1 0 0 0 0 0 0			4.93	4. 80	
	Sul-		0.58	552	722.72	. 59	20.12.5.7	30000	1:082	5.53	\$2.25	1.08	1,15
	Ash.		3.58	4. 28	8. 52 8. 80	5.47	2.77	2.23	3.69	2.72	2.74	5.37	6.50
mate.	Fixed carbon.		75. 28	74.94	73. 02 73. 18 50. 25	73.39	28.43 78.82 78.43	76.10	74. 59	77.40	74.82	79.56	77.69
Proximate.	Volatile matter.		18.68	16. 42	17. 98 17. 45 18. 02	17.85 18.46	19. 57 18. 07 18. 70	19.83	18.93	16.95	19. 22	20. 44 21. 09	22.31 19.67 20.18
	Mois- ture.		2.45	4.36	3.19	3.29	3.34	3.31	2.79	3.01	3.22	2.41	2.51
	Con- di- tion.		-01	2010	10 H C1 C	20-02	∞ H 01 0	2000	o → 01¢	o → 01 o	2-01	ro co	e − e e
Sample	Kind.		¥	4	4		¥	4	4	4		4	4
52	Lab- ora- tory No.		8070	8071	8072	8108	8035	8036	8048	8047	8103	7889	7890
	Locality, bed, etc.	WEST VIRGINIA—Continued.	Thurmond—Continued. 34 miles west of: Red Ash mine, Fire Creek bed (cross entry 1 off left entry 10, 14 miles	from drift mouth, 43-doot cut). Same (pillar, room 1, left entry 7, 12 miles south from drift mouth, 64-inch cut).	Same (14 miles southwest of drift mouth, 79 inch cut).	Same (composite of Nos. 8070-8072)	Turkey Knob, Turkey Knob mine, Sewell bed (left entry 15, 6,000 feet S. 80° E. from drift	mouth, 774-inch cut). Same (room 10, off right entry 14, 6,000 feet S. 30° E. from drift mouth, 553-inch cut).	Same (haul-way off right entry 7, 4,000 feet S. 30° E. from drift mouth, 521-inch cut).	Same (pillar, room 19, left entry 12, 5,400 feet east of drift mouth, 603-inch cut).	Same (composite of Nos. 8035, 8036, 8047, and 8048).	Whipple, Whipple mine, Sewell bed (entry 1, rock heading district, 4,000 feet north of shaft,	524-inch cut). Same (room 14, entry 16, 3,000 feet west of shaft, 5-foot cut).

													_	_	0
957	957	956	958			958	958	958	920	8 5	959	3	959	096	98
		698	385	362	362						:			87	87
	14,660 15,070 15,720	15,667	15, 271 15, 608 14, 733	15,538 14,238 14,828	15,712 14,105 14,801	15,674				15, 228 15, 528 15, 590			14,450 14,890 15,490		
	8,145	8,241	8,484	8, 632 7, 910 8, 238	8,729 8,836 223	8,708			- 1	8,460			8,025 8,275 8,610		
2.1		1.6		3.0	3.9	1.9	2.3	00		2.0	2.0	5.5	2.2	2.9	4.0
		3.23		7.73	9.02	5.38				3, 53			7.45		
		1.51		1.34	1.48	1.52				1.72			1.55		
		82.32 84.58 89.33		79.56	78.53	87. 27				86.99 89.99 99.99			81.61 84.13 87.55		
		4.78			6.03					5.10			5.02 5.03 5.03		
1.05	1888	1.02	3683	80000	55.35		823	.73	68.5	10.83	55.55	881	62:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0	5, 10	6.55.55
3.08	4.1	5. 18	2. 16		3	2.23	2.30	2.57	1.98	2.24	3.0	4.6	3.78	9.18	
7, 14	0,0,4,∞ 0,00,0,0 0,00,0,0	8. 23 8. 23 8. 23	71, 16 73, 53 75, 15	25.55.05 24.45.02 24.45.02	36. 18	73.55	73.90	74.82	74.05	74.34	74.0	68.8	74.5 68.7 71.1 74.0		57. 59 49. 74 53. 17 59. 48
	-	710	23. 53 24. 31 23. 67	002L	-109	25.5	282	:55	272	45.0	25.50	23.5	85.0 85.0 80.0		42.41 33.88 40.22 40.62
2.98		29	3. 34	86	4.71	3.19	3 7		3.13	3.41	:00	3.2	3.0	4.15	6.46
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8608	8599	8157	5467	5709	5711	8132	6133	0010	8134	8186	8147	8148	1618	1594	1572
(right entry 3 off main dipentry, 50-inch	vey's entry, 584-inch	Same (composite of Nos. 7889, 7890, and 8098)	Winona, Smokeless mine, Sowell bed (1,800 feet south- cast of drift mouth, left entry 1 for motor hauls, 464-inch cut), of drift mouth, free	a cut).	Same (run of mine, second car).	Grand Andrew Courter 9 900 fact from drift.		Same (left entry 3, 2,000 leet from anne model), 522-inch cut).	Same (pillar, left cross entry 15 off old hill main entry, 1,500 feet from drift mouth, 45-inch	Same (composite of Nos. 8132, 8133, and 8134)	# mile from; Dubree mine, Sewell bed (room 7, right entry 7, 38g-inch cut).	Same (left entry 7, 40%-inch cut)	Same (composite of Nos. 8147 and 8148)	Zalia, country bank, Mahoning bed, entire seam, 40-	inch cut). Country bank, Rogers or Lower Freeport bed, entire seam, 3-footeut.

99500°—Bull. 22—13——17

Table of chemical analyses—Continued.

	02	Sample.			Proxi	Proximate.			D	Ultimate				Calorifi	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-	Air. dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulle-tin.
WEST VIRGINIA—Continued. HARRIGSON COUNTY.																	
Carksburg, Pitcairn mine, Pittsburgh bed (fourth left entry, 1051-inch cut).	1103	¥	HD	1.98	40, 54	48, 40	9,08	28.20			1.28	:	0.9	7,481	13,466	261	096
Same (third right entry, 85-inch cut)	1104	4	n − n	1.87	45.58 40.30 41.07	54. 42 49. 73 50. 68	8.10	4.6.6			1.44		00	8,411	13,738	261348	096
Same (run of mine, 11 tons)	1308	C	m → 01	1.95	44. 76 39. 94 40. 73	55.24	7.86	4.8. 2.48 7.48 7.48	5.13	74.07	1.36	8.10		7,661	13, 790	48	
3 miles east of: Ocean mine, Pittsburgh bed (2,750 feet northwest of drift mouth, buttentry 2 of	2039	V	10 H 01	8.2	38.51 39.51 39.62	53. 14 53. 14	5.55	3894	5.44	82.13	1.51	7.06	1.5	7,813 8,495 7,836	14,063	48	961
Bae entry 3, 741-inch cut). Same (2,025 feet northeast of drift mouth, room 7 off butt entry 3, 774-inch cut).	2040	4	MHG	3. 27	37.72 39.00	57. 98 53. 27 55. 07	2.74	19:99 24:46 					1.9	8,550	14,512	28 <b>3</b> 39 9	961
Same (run of mine)	2195	0	m − α	2.01	41.46 37.31 38.08	58.54 52.13 53.19	25.55	55.25	5.08	75.83	1.43	6.57	6.	7,673	13,811	290	
KANAWHA COUNTY.			8		41.72	58.28		8 8 8			1.60	5.34		8,579	14,094		
Acme, Keystone mine, No. 2 Gas bed (4,600 feet east of drift mouth, left entry 8, 564-inch cut).	2375	4	-63	2.66	33.30	59.60	4, 44	1.14	0 0				1.4	7,982	14,368	290	1961
Same (3,500 feet east of drift mouth, room 16 off fifth right entry, 67±-inch cut).	2376	4	n → 01	2.84	35.84 33.18 34.15	64.16 58.75 60.47	5.23	11.23					1.6	8, 592	15,466	290	1961
Same (run of mine, sample 1)	2556	Ö	∞ <del>− 01</del> 00	2.82	33.20	63.91 56.95 58.61	8.26	1.42	5.16	76.74		7.35	2.1	7,648	13, 766 14, 166	290 29	
Same (run of mine, sample 2)	2626	O	4-0	-	32.53	56.95	7.63	1.50	53	37. 43	1.53	5.51	1.9		15,442	290	:
Charleston, 8 miles southeast of Black Band No. 2	4290	4		3, 46	36.36	53.53	8.20	1.67					1.8			332	962

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63	4	67
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332 332	332	332	7550	3 <b>88</b> 83 83	332	332	28888	590			
13, 968 13, 968 13, 968 13, 968 15, 108 15, 107	15, 187 12, 836 13, 453 14, 993 14, 204	15,053	13, 963 15, 192 15, 298	13, 963 14, 414 14, 960	13,523	13,707	14, 697 14, 697 15, 271	13, 948 14, 465 15, 230	10,004	13,918	14, 126 14, 364 15, 215
7,7,484 7,7,484 7,7,60 8,391	8,437 7,131 7,474 8,330 7,674 7,891	8, 363	7, 757 7, 757 8, 440 8, 499	8,008 8,311	7,513	8,512 7,615 7,775	7,874 8,165 8,484	7, 749 8, 036 8, 461	0,000	7,732	7,848
2.3	2.9	1.5	7.0	1.4 5.5	1.7	9.	2.0	9.1			
12.69 9.34 10.10	10.18 10.80 7.04 7.84		8.39 8.47			1.8.7.		6.58	50.5		8.17 6.81 7.21
1.40	1.15		1111		1.48	88888		1.55	B.1	25.5	3888
	84.11	: : : : :	£83.7 7.83		75.27	25.58 77.14 17.14		80.36 84.61			80.30 85.06
	5.52 5.53 5.52 5.53		5.40			5.08 4.95 40.08		5.33			5.06 5.36
88425445	1.01	8885	282	6.5.82	1.22	1.38	1.18	1.32	:	1.29	.93
8.49 6.78 7.06 7.22 7.54	9.80 10.27 5.49 5.65	6.44	8.10	3.65	6.57 7.58 7.83	8.10	3.62	4.28		6.95	5.51
55.72 56.89 56.89 56.99 66.09	52.23 54.74 61.01 56.27 57.86				56.53 54.56 56.40			58.38 60.99 55.20 57.24 60.28		57.86	59.94 60.95 64.57
35.79 36.25 36.25 36.25 36.97 36.97	33.38 34.99 38.99 35.49				36.98 34.61 35.77 85.77			37.34 39.01 36.38 37.73			32.89 33.45 35.43
3.91	4.59	3.49	9.42	3, 13	3.25	2.05	3.57	3.57		1.60	1.66
01 20 H 01 20 H 01 20 H	*	co ← c1 co −	- 01 co + 1	c1 cc	\$1 co \$1 c	o → → 03 0		01 m 01 m -	*	-676	01010
4 O	C V	4		< <	C	ပ	4 4	Ö		д	m ·
4291	3711	3457	coec	3459	3625	3965	2377	2572		7658	7659
mine; Black Band or Winitrede bed (1,300 feet south of opening, 33½-inch cut). Same (800 feet west of opening, 34½-inch cut) Same (lump, over 1½-inch screen)	Hernshaw, Butler mine, No. 2 Gas bed, car sample, through 14-inch screen.  Marmet mine (400 feet east of opening, 62-inch cut).	ame (1,200 feet east of opening, 43-inch cut)	Same (stack through 11-men screen)	Monarch; Monarch mine, Cedar Grove Ded (1,309 feet north of opening, 374-inch cut).  Same (1,500 feet northwest of opening, 38-inch	cut). Same (slack through 1½-Inch screen)	Same (run of mine).	Winifrede, Gas mine, Peerless bed (1,400 feet southeast of drift mouth, room 12 off left entry 3, 323-1nch cut).  Same (800 feet southeast of drift mouth, room	No out left entry 1, 203-inch cut). Same (run of mine)	LOGAN COUNTY.	Holden, 1 mile east of; No. 3 mine, Island Creek (No. 2 Gas) bed (right entry 1, oif main, 74\frac{1}{2}-inch had	Same (1,600 feet, northeast of opening, left entry 3, off main, 77-inch bed, 585-inch cut).

Table of chemical analyses—Continued.

ence	Page of this bulle-tin.	996	996	996	996	996	996	796 796	196
Reference	Bul- letin No.								
Calorific value.	British (hermal units.		*	14,360	15, 760 14, 398 14, 841 15, 820		14, 740 15, 350 15, 880		
Calorif	Calo- ries.			7,980	8, 755 7, 999 8, 245 8, 790		8, 525 8, 822		· · · · · · · · · · · · · · · · · · ·
	Air-dry-ing loss.	2.4	1.2	9 : 1:0		3.5		S S	.c.i
	Oxy-gen.			2.53 0.83	21.4.2. 31.78 33.88 83.88		2.001		* * * * * * * * * * * * * * * * * * *
8	Nitro- gen.			1.11	1.22		1.14		
Ultimate.	Car- bon.			86. 10	91.45 82.91 85.46 91.11		84.29 87.75 90.82		
	Hy- dro- gen.			4. 4. 33	4.4.4.4. 8.7.3.4.8.4.8.4.8.4.8.4.8.4.8.4.8.4.8.4.8.4		4.44 4.60		
	Sul- phur.	0.62	69.4.6.2.4	84 55 45	522	88888	35.22.25.5	4.65.44	52.20.20.
	Ash.	6.71	5. 67	5.82	6.01	ად დად ე ლ : თ 4		94 44 02 HE	5.5
mate.	Fixed car-	77. 48	85.69 78.92 86.05 78.25	80.56 77.5.54 80.1	38.78.33 36.76 76.76	28.55.09.99.99.99.99.99.99.99.99.99.99.99.99.	85.5	23.55.25	35.5
Proximate.	Vola- tile mat- ter.	12.94 13.32	12, 31 13, 13 13, 94 13, 23				14.5 15.0 16.0		
	Mois- ture.	2.87	2.63	3.2	2.99		4000		2.2
	Con- di- tion.	77	m=00=	00000	n − 0 m −	-00 cm -01	ლ— 63 m ←	- CO CO	დ⊣01 დ
Sample.	Kind.	4	< <	V		4	<	: <	4
02	Lab- ora- tory No.	8324	8323	8321	8428	8644	8747	8326	8363
	Locality, hed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY.  Algona, 1 mile from; Piney mine, Pocahontas No. 3 bed (air way off big 4 entry, 744-inch cut).	Same (main entry, 63½-inch cut)	Same (room 31, off cross entry 4, 72-inch cut)	Same (composite of Nos. 8322-8324)	hontas No. 3 bed (right entry I, 450 feet from darith mouth, 852-inch cut). Same (main entry, 350 feet from drift mouth, 912-inch cut).	Same (composite of Nos. 8643 and 8644)  Arlington, Arlington mine, Pocahontas No. 3 bed (mi-	lar 7, room 16, cross entry 10, 58½-inch cut). Same (pillar 7, cross entry 8, 56-inch cut)	Same (main entry, 57½-inch cut)

8	296	296	296	808	908	8968	968	896	896	696	696	696	696	696	696	696
:				:	:							:			:	:
		14, 480 15, 030	15, 130	14,143	14, 660	14,550	0/0 '01		14,550	15, 840			14,620	14,740	15,820	
		8,045	8,8,8,5 5125,8	6,7,3,5 6,8,8,5 6,8,8,5 6,8,8,5 6,8,8,5 6,8,8,5 6,8,8,5 6,8,8,5 6,8,8,5 6,8,8,5 6,8,8,5 7,8,8,5 8,8,8,8,5 8,8,8,8,8,5 8,8,8,8,8,8	6,8,8,9 146,145 146,14	6 8 8 8 6 8 8 8 8	6		8,082	8, 798			8,375	8, 190 8, 455	8,790	
3.3		2.8	2.6	3.1	2.4	2.7	2.5	က ဂi	23.23	3.0	2.0	1.9	0.1	2.5	1.9	1.9
			1000 1000 1000 1000 1000 1000 1000 100						588					2.12		
		1.08	1.04	1.12					1.03	1. 12				1.13		
			88.92 86.81 86.81						85.39					88.00		
		4. 4. 85. 4.	56.44.4 50.88	80 %					4.56					4.39		
38	3444	4.5	4.4.5.	3483	322	313131	8888	28.8	828	28:81	888	888	888	8.2.28	888	3885
4.4. 0.8	3.9	4.88	4.51	5.7	3.9	3.5	4.4	5.2	5.33	3.6	3.9	20 cg	+6.	3. 67	7.0	0.00 0.00
\$0.7	25.25 20.00 20.00	81.1	8.65.85 0.80	9,6,6,2 0 - 10 1	16.87	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		31:15 0 - 18	87;83 040	2,6,8; 0,000	3 3 3 3 3 0 0 0 0	81.6 79.7 81.6	0 8 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 8 9 9 9 9 9 9	76.5	84.5 77.9 84.0
	2.4.4.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2		4 교 교 교 수 전 1	4444		0.020	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0 10 10 0 10 10	244 2000					121.25 0.05 0.05	13,5 14,0 14,5	15.5 14.5 15.0
4.	: :	3.6	3.3	4.2	3.1	3.7	3.1	2.9	2.8	4.1	2.6	2.5	3.0	3.2	2.5	2.4
- 23	m = 01 m	- 01:		2-010			o c₃ :	.o — c₁	m − α:	n ← 01 :	n 01 :	0-010	0 11 01 1	10 m c1	20-01	m=0100
<u>۷</u>	<			<	<	4	<	<		<	<	<	<	:	<	<
8364	8365	8419	8418	8477	8478	8479	8491	8492	8929	8526	8527	8528	8529	8679	8493	8494
Same (cross entry 8, off diagonal 1,64-inch cut).	Same (cross entry 12, off Burkes garden entry, 583-inch cut).	Same (composite of Nos. 8363-8365)	Same (composite of Nos. 8325 and 8326)	Ashiand, Ashiand mine, Poeahoutas No. 3 bed (room 27, off entry 2, off Tadpole entry, 54}-inch cut).	Same (room 2, cross entry 1, off Wheeling entry, 532-inch cut).	Same (room 1, cross entry 1, off entry 8, 55-inch cut).	Same (room 16, cross entry 4, off Ohio entry St. Louis panel, 514-inch cut).	Same (Virginia entry, 53-inch cut)	Same (composite of Nos. 8477-8479 and 8491-8494).	#mile north of; Cherokee mine, Pocahontas No. 3 bed (main air course 2, 61-inch cut).	Same (right entry 4, off main entry, 56-luch cut).	Same (left entry 5, off main entry 1, 581-inch cut).	Same (pillar 26, left entry 2, off main entry 1, 461-inch cut).	Same (composite of Nos. 8626-8528)	1 mile east of, Monttor mine, Pocahontas No. 3 bed (Kentucky air course, 5,500 feet S. 86° E. of	

Table of chemical analyses-Continued.

				_		_		_				
Reference.	Page of this bulle- tin.		696	970	970	970	026	970	970	971	971	176
	Bul. letin No.											
Calorific value.	British thermal units.		15,020 15,730 14,730	15,100				14,620	15,760 14,660 15,110	15,830	14,450	15,850 14,770 15,220 15,870
Calorif	Calo- ries.	9	8,340 8,770 8,770	8,385				8,125	8,755 8,145 8,390	8, 795	8,025	8, 205 8, 205 8, 460 8, 815
	Air-dry-ing loss.		2.0	2.2	2.4	2.2	2.3	2.4	21 23	4.2	4.3	2.3
	Oxy- gen.							6.83	2.46 2.93	3.08		
	Nitro-gen.							1.10	1103	1.17		
Ultimate.	Car- bon.							82. 87 85. 47	89.33 86.95 52.55	90. 66		
ū	Hy- dro- gen.								4. 53 4. 56 36 36			
	Sul-		50.55	550.44	÷ ÷÷	ट हे हैं हैं - जिस्ते हैं	3333	£4.	5.4.3	8.65	325	2552
	Ash.		4.4.4.00 E	4 44 2 62	3.9	24	4.4. wro.	4.32	4. 43	01 th	0.4	3.9
mate.	Fixed carboon.	1	79.6 79.6 78.1 78.1	83.5 79.4 81.7	86.0	8.79.0 4.0.1 1.0.4.0	85.0 25.0 25.0 25.0	80.0 79.3 81.7	85.0 79.1 81.4	80.10	S4. 0 76. 1 80. 4	84.0 84.0
Proximate.	Vola- tile mat- ter.		15.00	15.5 13.0 13.5	14.0 13.0 13.5	13.5	4 C C C C C C C C C C C C C C C C C C C	13.5 14.0 14.0	15.0 13.5 14.0	15.0 15.0 15.0	15.0	16.0
	Mois- ture.				3.1	2.9	3.0	3.0	3.0	4.9	5.0	3.0
	Con- di- tion.	,	-0100-	01 00 14 01	2 - 3	e - e 1	n-01	2-0	es → 51	m → 01	m-01	m-0100
Sample.	Kind.		< <	<	4	4	<			4	V	<
20	Lab- ora- tory No.	100	8496	8700	8701	8727	8726	8792	8793	8828	8839	8830
	Locality, bed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.  Ashland, Monitor mino—Continued.	entry, 52½-inch cut). Same (pillar 15, cross entry 3, off Kentucky	entry, Andrew panel, 533-inch cut).  Bear Wallow, near (Worth post office); Roanoke mine, Poenhortus No. 3 bed (pillar 63, Klondlice).	entry, 6,700 feet N. 59° E. of drift mouth, 57-inch cult.  Same (culty 15, off diagonal entry off main, 6,200 feet N. 40° E. of drift mouth, 58-inch	Same (pillar 19, cross entry 3, off China entry, 2,200 feet N. 40° E. of drift mouth, 562-inch	Same (cross alr course 6, off China entry, 3,600 feet N. 25° E. of drift mouth, 55½-inch cut).	Same (composite of Nos. 8701 and 8726)	Same (composite of Nos. 8700 and 8727)	Big Sandy, Big Sandy mine, Sewell bed (right entry 2, off left entry 2, 3,500 feet N. 30° E. from drift	mouth, 38-inch cut). Same (pillar, cross entry 3, off right entry 1, 1,360 feet S. 35° E. of drift mouth, 422-inch	cut). Same (pillar, right entry 3, 2,900 feet S. 45° E. from drift mouth, 46-inch cut).

			AINE	LLI	SES U	or CO	ALS	110	LIL	UI	ILE	D 5.	LAIL	200.		201
126	971	176	971	126		973	973	973	973	973	973	973	973	973	973	973
:		:	200	261	828											
		14,580	15,820 14,926 15,217	14,731	15,905 14,571 14,827 15,941	16,027			13,642	15, 698		2 9 9	13,995	15,696		
		8,445	8,8,8,8 1,29,29 1,29,29 1,24,20 1,24,2	8, 184	8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,	8, 904			7,579	8,721			7,775			
3.0	2.9	e. 44	1.6	2.9	1.1	1.9	1.7	1.6	1.7	1.7	1.5	1.6	1.6	1.4	1.3	1.8
		25.5			2.50				2.91				4.45			
		1.35			1.33				1.17				1.19	1.34		
		83.53			82. 71 84. 16 90. 48				78.31	90.11			80.69 82.50			
		24			4, 4, 4, 24, 25, 24, 25, 24, 24, 25, 24, 24, 24, 24, 24, 24, 24, 24, 24, 24,				4.25			* 1 1	4.30			
655	6888	6.65	5888	325	6.882	25.25	3699	2000	328	22.20	520	3,3,3	37.8	26.00	25.53	24.4.2
44	00 ci ci	3.78	4. 39	3.90			10.24	10.13	10.74	8.49	9.83	8.59	8 8 8 8 8 4	9.58	8.08	8.46
80.6	281.6 21.6	77.1	37.7.8 37.3.8 37.3.8 38.8 38.8 38.8 38.8	73.73	79.61 73.56 74.85 80.47											75,41 77,54 84,93
					20.39 17.85 18.16			######################################			14. 65					13.38
3.8	: :	7	1.92	3.48	1.72	2.50	2.37	2.28	2.35	2.02	2.09	2.14	2.19	1.99	2.04	2.75
— cac	0-1010				100-0100	4-010		2-01						en ← en e		
V	4		٧	4	Ö	4	<	٧		4	4	4		4	4	4
8827	8826	8934	1238	1242	1364	8630	8631	8632	9698	8503	8204	8505	8593	8054	8653	8652
Same (main entry, 5,000 feet S. 70° E. of drift mouth, 49½-meh cut).	Same (left entry 13, 3,500 feet east of drift mouth, 43½-inch cut).	Same (composite of Nos. 8826-8828)	Same, No. 8 or Tug River bed (right entry 3, 34-foot cut).	Same (right entry 5, 43-inch cut)	Same (run-of-mine, 40 tons)	Carretta, Carretta mino, Bockloy bed (main butt west entry 1, 45-nch cut).	Same (main east butt entry, 1,000 feet from drift mouth, 49-inch cut).	Same (main south entry, 1,100 feet from drift mouth, 494-inch cut)	Same (composite of Nos. 8630-8632)	Coalwood, Coalwood No. 1 mine, Welch bed (room 2, entry 4, 49-inch cut).	Same (room 17, cross entry 4, 56-inch cut)	Same (room 2, cross entry 8, 4½-foot cut)	Same (composite of Nos. 8503-8505)	Coalwood No. 2 mine, Welch bed (entry 7, off main entry, 43-inch cut).	Same (right butt entry 1, off east main entry, 35-inch cut).	Same (room 6, right ontry 1, off west main ontry, 43-inch cut).

Table of chemical analyses-Continued.

ence.	Page of this buller tin.		973	973	973	973	973	975	975	975	975	975	946
Refer	Bul- letin No.					:							362
Calorific value. Reference.	British thermal units.		13,955	15, 094			14, 202	15, 734				14,580	15,820 14,809 15,246 15,871
Calorif	Calo- ries.		7,753	8,719			7,890	8,741				8, 395	8, 785 8, 227 8, 470 8, 817
	Air- dry- ing loss.		1.5	1.6	1.7	1.4	1.6	2.6	2.9	2.5	3.2	2.8	1.9
	Oxy- gen.		3.15	3.51			3,10	3.36				2.79	2.93
	Nitro- gen.		1.25	7.37			1.31	1.45				1.13	1.18
Ultimate.	Car-		79.98	89.93			81.29	90.06				83.72	90.84
Ω	Hy- dro- gen.		4.31	4.07			4.39	4.56				4.4.53.13.13.13.13.13.13.13.13.13.13.13.13.13	4.51
	Sul-		0.54	328	55.53	55.	33.23	545	388	3000	34.45	3000	25.25.25.25.25.25.25.25.25.25.25.25.25.2
	Ash.		9.80	7.55	5.84	8.80	7.34	3.0	4.4	5.2	1.4.	4.31	3.83
nate.	Fixed carbon.		75.20	78.58	85.08 78.17 80.03	77.32	73.73	85.55 78.4 81.1		23.57	277.4	77.7	84.5 78.39 80.71
Proximate.	Vola- tile mat- ter		13.71	13.45	13.56 13.99 13.99	13.58 13.58 13.88	13.04	14.45	0021	15.5 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	15.0	15.0	15.35 15.35 15.98
	Mois- ture.		2.29	2.33	2.33	2.19	2.40	3.3	3.6	3.2	4.0	5.5	2.87
	Con- di- tion.		-010	n → 01	∞ <del></del> 01	m = 01	n – 01	m + 010	2010	n → 01 0	2-010	2000	m + 01 m
Sample.	Kind.		4	₹	<	<		4	<	V	٧		4
σũ	Lab- ora- tory No.		2698	8665	8664	8663	8698	8645	8646	8692	8693	8724	5276
	Locality, bed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.	Coalwood, Coalwood No 2 mino—Continued. Same (composite made by mixing 8652, 8653, 8654).	Coalwood No. 4 mine, Welch bed (right entry 4, 47-inch cut).	Same (room 15, main air course, 55-inch cut)	Same (right entry 12, 41-inch cut)	Same (composite of Nos. 8663-8665)	Crumpler, Zenith mine, Pocahontas No. 3 bed (Texas heading 2, 3,600 feet cast of drift mouth,	Same (room 20, right entry 1, off main entry, 2,700 feet S. 45° E. of drift mouth, 532-inch	Same (Pennsylvania entry, 3,150 feet N. 35° E. of drift mouth, 461-inch cut).	Same (Wisconsin air course, 3,000 feet N. 10° W. of drift mouth, 41-foot cut).	Same (composite of Nos. 8645, 8646, 8692, and 8693).	Davy, I milesoutheast of (Hallsville post office); Black-stone mine "Thin Vein" (3,000 feet south drift mouth, main entry, 44-inch cut).

976	976	926	976	976	976	976	976	!	:	770	878	826	978	878	878	978
362	:	:		:	:			362	362			:	:	:		
14,823	700 (01					14, 620	15, 260 15, 260 15, 250	14, 276 14, 555	15,851	15, 836	14, 422	10,010		14, 740	15, 900	
8,235	0,012					8, 120	8,8,8,8 8,0,4,8 8,0,4,8	8, 7, 931 8, 086	8,80 8,00 118 118	8, 798	8,287	O, 06.1		8, 190	8,835	
2.7	2.0	2.9	2.7	2.3	3.5	3.1	2.5	1.2	6.	2.5	. cri	2.9	e	3.1	00 04	53
						5 8 8	8638	30.00	282	2.81			. 0 0 . 0 0 . 0 0 . 0 0 . 0 0	5.98		
						28.5	2.1.3	1.28	 83.1.	1.13				1.43		
						83. 18 86. 37	86.25 86.25	82.90 82.90	8 2 2 8 3 2 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	90.47				83.91	90.50	
						4.46	8.55.53 8.55.53	4.65	88.4. 88.4.	4.81				4.44	4.60	
8.29	388	ន់នន់ខ	55.53	3889	8888	388	397.	\$ 89.00	533	32.21	:5:5:5	58.88	8.888	. 555	3.7.5	2222 2222
3.08	4.4	e.e. €.4	2.53		2.8	3.85	5. 5. 5. 5.	8. 18 18 18	7.28	4.45	5.85	3.1	ဘထ	3.43	4.7	44
81.35	878.5 87.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8	6.6.6.	8.5 5.8 5.8 5.8	81.2 2.2 2.2 2.2	81.7	58.33 000	81.6 20.0 21.6	74.65	82.89 76.10	75.58	74.75	81.9 81.9 81.9	20.2	8.25.5 5.25.4 5.25.4	85.5 77.1 79.8	80.3 \$0.3 \$0.3
15.01	1 1 1 1 1 1 1 1 1 1 1		5.5.0	2.4.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	0.000	122; 122;	5.4.7.7.7.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	15.41	12.21	16.98 17.98	16. 12 16. 67 27. 67	12.5 15.0 15.0		13.5	15.0	16.5 15.0 16.0
3.58	3.6	3.6	3.3	3.1	53	3.7	23	1.92	1.62	3.07	3.32	3.7	3.9	3.9	3.4	3.1
	04010	o 01 0	9-103	m → 04 c	2-010	c1 c	o to → ca	2-01	es → es :	n-n:	o <del></del> c1 c	o → 010	2-01	2-2	8-8	m – 01 m
٧	<	<	<	∢	4	٧	<	၁	၁	<	<	4	V	:	4	4
5277	8513	8514	8516	8517	8515	8590	8289	5334	5459	4288	4289	8628	8629	8748	8625	8626
Same (2,400 feet west of drift mouth, seventh right entry, 391-inch cut).	Same (left entry 16, 3,700 feet from the drift mouth, 45\(\frac{1}{2}\)inch cut).	Same (right entry 3, of cross entry 4 off right ontry 6, 3,650 feet from drift mouth, 393-inch	Same (pillar, room 5, on right entry 1, off cross ontry 4, off right entry 6, 3,000 feet from drift	mouth, 43}-inch cut, pillar sample). Same (room 15, left entry 8, 2,550 feet from drift mouth, pillar sample, 353-inch cut).	Same (left outry 8, 3,650 feet from drift mouth, 301-inch cut).	Same (composite, made by mixing Nos. 8513, 8514, and 8515).	Same (composite, made by mixing Nos. 8516 and 8517).	Same (run of mine, first car)	Same (run of mine, second ear)	No. 1 mine, "Thin Vein" (room 3, right entry 6, 1,200 feet southwest of drift mouth, 384-inch	Same (room 2, left entry 12, 9,700 feet south of drift mouth, 444-inch cut).	4 mile north of; Helena mine, Sewell bed (right entry 1 off left entry 1, 600 feet from drift mouth,	Same (main entry, 1,200 feet from drift mouth 32-inch cut).	Same (composite of Nos. 8628 and 8629)	1 mile north of; (new) Davy Crockett mine, Sewell bed. (Crosseut 3, left entry 1, drift 2, 1,100	feet from drift mouth, 3-foot cut). Same (right entry 14, drift 1, 1,850 feet from drift mouth, 374-inch cut).

Table of chemical analyses-Continued.

Lab- ora- tory No.
8627 A
8746
8511 A
8512 A
8591
8518 A
A 6158
8520 A
8594
8572 A
8753 A

086	086	086	086	980	9×1	981	981	981	186	981	982	982	982	983	983	9%
Ī								:	:				:			
14,600	15,820	14, 500	010,010	14,550	15, 820					14, 480	15,810		14,610	0.000		
8,385	8, 785	8, 055	00, 00	8, 335 8, 335	0, (00)					8,015	8, 785		8, 120	Car to		
:s	10 21	1.9	2.1		25	C.1	2.5	co ci	0.5 34	2.5	es esi	1.8	2.1	2.5	4.1	2.4
				25.03	2.13					5.04	2.36		2.37	77		
				1.12	1.18			· · · ·		1.16	1.27		11.1.	1.20		
				S4. 28 86. 90	91.00					83.50	91.18		84, 15	91.10		
				4. 43	4.40					4.54	4.56		42.	4		
33.	3338	3888	288	88.29	238	388	888	388	588	388	. 55. 55. 55. 55.	ឌនិនិ	522	.53.5	.54	3443
4.6	5.1	5.7	4.7	4.98	5.1	8.4	5.5	50.00	5.5	5.34	5.0	4.4. 6.4.	4.88	7.22	4.39	5.67
82.9	87.0	80.72	81.1	85.5 20.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5 1	85.6 81.4	86.0 78.5 81.6	85.0 85.0 85.0	81.05	81.0 81.0	82.0	8785. 80.03 90.03	85.0 81.6	81.18	74.47	76.19 79.81	83. 47 75. 30 77. 53 82. 34
12.0	13.00	13.0	13.5	14.5	13.0	13.5	2.5.0	25.05	13:50	13.5	13.5	0.5.1.	13.5	15.24	15.08	16.53 16.63 17.66
3.2	3.1	2.6	2.6	3.0	3.5	3.2	3.1	2.9	3.1	3.3	62	6.1 00	3.0	3.07	4.54	2.88
	m – m	n-010	o 01	m-01	2-01	m - 01	თ — ი≀:	m — m	2-21	m - e1	m → 01	en − en e	2-010	5 H C	c - 61	2400
V	4	<	٧		V	<	V	4	V		4	<		٧	4	۷
8754	8755	8756	8580	8849	8784	8775	8774	8773	8772	8842	9010	9011	9036	9302	9303	9304
Same (pillar 16, entry 22, east side, 68-inch cut).	Same (entry 4 on east side, 65½-inch cut)	Same (break-through off room 53 off entry 67, off entry 8, 73‡-inch cut).	Same (break-through, entry 1, 672-inch cut)	Same (composite of Nos. 8572, 8580, 8753, and 8755.	Eckman, Shawnee mine, Pocabontas No. 3 bed (entry $2$ , off entry 17, off main entry, 4,800 feet from	drift mouth, 64-foot cut. Same (room 13, off line Ridge entry, 5,400 feet S. 10° W. of drift mouth, 763-inch cut).	Same (right entry 2, off entry 22, off main entry, 6,200 feet S. 10° W. of drift mouth, 754-inch	cut). Same (room 50, off entry 13, 7,200 feet S. 30° W. of drift mouth, 734-inch cut).	Same (room 15, off main entry 2, 6,700 feet S. 15° W, of drift mouth, 772-inch cut).	Same (composite of Nos. 8772-8775 and 8784)		feet from drift mouth, 77-inch cut). Same (pillar, entry 23, off cross entry 1, off main entry, 1,500 feet from drift mouth, 784-inch	Same (composite of Nos. 9010 and 9011)	1 mile southeast of; Pulaski No. 2 mine, Pocahontas No. 3 bed (last break-through on main entry	6,000 feet in, 84!-inch bed). Same (room 5 pillar, right entry 8, off main entry 1, 4,400 feet in, 77!-inch bed).	Same(room 15 pillar, crossentry 3, off right entry 7. 4,000 feet in, 70½-inch bed).

Table of chemical analyses-Continued.

	- S2	Sample.			Proximate.	mate.			1	Ultimate.				Calorifi	Calorific value.	Reference	ance.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy-	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this builte.
WEST VIRGINIA-Continued.									,								
M'DOWELL COUNTY—continued.  Eckran, Pulaski No. 2 mine—Continued.  Same (room 10, cross entry 3, off entry 35, 6,000	9305	4	-:	2.73	15.68	76.38	5.21	0.62	:				ei ei	:		:	983
Same (room 10, cross left entry 1, off entry 34,	9306	V	30-0	3.14	16. 12 17. 03 15. 94	78.52 82.97 76.95	3.97	1828					2.6			:	25.
Same (pillar 12, cross entry 3, off entry 6, 2,800 feet in, 661-inch bed).	9307	<	100-01	2.68	17.16 15.02 15.44	82.84 77.09 79.21	5.21	8882					2.0				983
Same (composite of Nos. 9302-9307)	69466	:	eo — 54	3.06	16.31 14.91 15.38	35.55 88.83 88.83	5.43	55.52	4.56	82. 61 85. 22	1.07	5.56	2.6	8,011	14, 420	:	983
Same (barrier pillar between cross entries 2 and 3, off entry 6, 674-inch cut).	10093	4	n-00	3.64	16.29 16.06 16.67	83.71 76.28 79.16	4.02	55.55	4.83	90.27	1.17	3.11	3.1	8,754	15, 757	:	983
Same (barrier pillar between cross entries 3 and 4, off entry 7, 662-inch cut).	10094	<	20 - 03 0	3.09	17.40 15.37 15.86	86.75	4.14	25.55					2.5				983
Same (barrier pillar between cross entries 7 and 8, off old main entry, 72-inch eut).	10095	V	2-010	3.37	16.33 88.83 88.83	78.25 2.87 2.87 2.87	4.23	35.85					o ci				983
Same (composite of Nos. 10093-10095)	10103	٧.	201	3.32	16.22	76.35	4.25	55.5	4.67	83.05 85.90	1.16	3.63	2. 2.	8,382	14, 587 15, 088		983
Same (entry 34, 804-inch cut)	10096	V	co — ca c	2.84	17.53	77.31	5.12	88.28	4.65	89.71	1.25	3.79	2.3	8,754	15, 757		983
Same (entry 35, off main entry $2,753$ -inch cut).	10097	٧	10 - cs	3,44	16.90 17.54	17.25	5.00	ses:					23.00			:	983
Same (last break-through between main entry 2 and air course, 77-inch cut).	10098	<	α-010	3.09	18.50 16.41 7.73 17.73	81.50 75.85 78.27 82.22	4.65	65.55					2.5			:	983

983	984	984	984	984	984	982	982	985	986	985	985	982	986	986	986	986
-																
14,530	15,777				14,280	15,760						14, 598	15,847			
8,072	8, 765				7,935	8,755						8,110	8,804			
2.5	2.1	2.2	7.6	2.5	3.6	2.1	2.4	2.2	2.6	3.2	2.6	2,5	2.6	2.5	1.9	2.6
5.21					20.0							5.02				
1.14	1.24				1.13	1.25						1.10	1.20			
83,46	90.63				86.32	91. 20						83.96	91.13			
4.76					4.30	4.54						4.59	4.82			
.59	268	13.55	65.8	888	38.53	.59	25.4.4.	24.4.	848	52.25	51-52	54.	¥4.6	828	88.	525
5.01	5.2	6.4	5.7	5.0	5.12	4.10	4.79	4.68	4.40	4.73	4.72	4.63	4.52	4.62	4.34	4.44
75.47	77.7	81.1	20.00	24.0 20.0 80.0	20.10		85.35 77.89 80.32	84.36 79.18	81.49 81.49	85.37 78.17 81.54	85. 77 78. 42 81. 20	85. 58 79. 00 81. 64	85.75 70.59	86.14 78.44 80.87	84.91 78.29 80.28	84.02 79.09 85.64
		1001	44.75	0100	00.00	13.65	14. 65 14. 44 14. 89		96.00	222	242	13	3888	37	223	15.98 13.26 14.36
3.05	2.8	2.9	8.3	3.2	4.3	2.73	3.02	2.72	3.40	4.13	3. 43	3.24	3.24	3.00	2.48	3.21
- 23	************	- 010	2 – 01	2000	2-03	2 - 01	ee → 01	2000	2-010	200	2-010	2-01	m=010	200	n → n	m=0m
V _	~	4	7.	V		V	<	V	٧	4	<		<	4	٧	<
10104	8789	8788	8787	8786	8837	8228	8229	8230	8231	8232	8233	8302	8222	8223	8224	8225
Same (composite of Nos. 10096-10098)	1 mile southwest of; Eureka mine, Pocahontas No. 3 bed (entry 26, off cross entry 6 off main, 83, moth out)	Same (entry 2, off right entry 26 off cross entry 6 off main entry, 854-inch cut).	Same (entry 7 off main entry, 80-inch cut)	Same (entry 39 off cross entry 6 off main entry, 79½-inch cut).	Same (composite of Nos. 8780-8789)	Elkhorn, 4 mile west of, Upland mine, Poeshontas No. 3 bed (pillar, room 15 on cross entry 6, 2,000	feet from drift mouth, 843-meh cut). Same (pillar, room 44 on cross entry 7, 5,500 feet from drift mouth, 873-inch cut).	Same (pillar, room 41, cross entry 10, 6,200 feetfrom drift mouth, 774-inch cut).	Same (room 40, cross entry 13, 7,900 feet from drift mouth, 74-foot cut).	Same (mill branch entry, near cross entry 13, 6,500 feet from drift mouth, 85-inch cut).	Same (room 51, cross entry 11, 7;660 feet from drift mouth, 82;-inch cut).	Same (composite of Nos. 8228-8233)	1 mile east of, Crozer No. 1 mine, Pocahontas No. 3 bed (pillar, room 33 on cross entry 12, 7,500	Same (pillar, room 19, cross entry 11, 6,800 feet from drift mouth, 102½-inch eut).	Same (pillar, room 4 on cross entry 9, 4,500 feet from drift mouth, 72-foot cut).	Same (room 13 on cross entry 13, 7,200 feet from drift mouth, 86-inch cut).

Table of chemical analyses—Continued.

ence.	Page of this bulletin.			986	986	986	986	986	986	986	986	986	986	886
Reference.	Bul- letin No.													
Calorific value.	British thermal units.				· · · · · · · · · · · · · · · · · · ·	14, 591	15,782					14,645	15,863 14,452 15,023	15,804
Calorifi	Calo- ries.			0 1 0 0 0 1 0 1 0 1		8,106	8,768					8,136	8,813 8,029 8,346	8,780
	dry- ing loss.			2.9	3.2	2.6	1.8	1.7	2.6	3.1	3,5	1.8	3.1	2.1
	Oxy-gen.			8 8 8 8 8 8 8 1		5.41	2.82					1.88	25.89	2.73
	Nitro-gen.					1.07	1.15					1.28	688	1.15
Ultimate.	Car-					83.83	90.68					84. 23 86. 61	91. 24 83. 17 86. 46	90.96
. r	Hy- dro- gen.					4.75	4.76					4.68	4.74	4.56.
	Sul-			0.53	86.13	342	65.00	223	55.	24.05.	62.53	65.53	. 55	823
	Ash.			4.35	4.53	4.40	4.69	5.39	4.95	4.73	3.99	4.94	4.75	4.06
nate.	Fixed car-			78.57	81.35 81.35	77.87	84.24 79.45 81.63	85.65 77.17 79.28	83.93 79.10 81.89	26.31	81.87	85. 42 78. 38 80. 59	84.90 77.74 80.81	85.01 82.42 82.42
Proximate	Vola- tile mat- ter.			13.78	13.59	14.57	13. 31 13. 31 13. 68	14, 35 14, 78 15, 18	16. 07 12. 55 12. 99	13.98 14.54 15.54 15.54 15.54	13. 40	13.94 14.33	15.10	14.99 13.05 13.41
	Mois- ture.			3, 45	3.74	3.16	2.68	2.66	3.40	3.84	4.08	2.74	3.80	2.67
	Con- di- tion.				2-010		100 01	∞=α <sub>1</sub>	∞ <i>←</i> α ι	2000	n → 01		ω –i Ω	100-101
Sample.	Kind.			٧	¥		¥	¥	4	4	4			4
SS	Lab- ora- tory No.			8226	8227	8297	8429	8430	8451	8452	8453	8470	8471	8319
	Locality, bed, etc.	WEST VIRGINIA-Continued.	M'DOWELL COUNTY—continued.	Elkhorn, Crozer No. 1 mine—Continued. Same (room 10 on cross entry 16, 8,100 feet. from drift mouth, 7-foot cut).	Same (cross entry 20, 9,600 feet from drift mouth, 863-inch cut).	Same (composite of Nos. 8222-8227)	Crozer No. 2 mine, Pocahontas No. 3 bed (pillar, room 17, cross entry 12, 6,400 feet from drift	mouth, 89½-inch cut). Same (pillar between cross entries 11 and 12, 6,000 feet from drift mouth, 85-inch cut).	Same (room 22, cross entry 15, 7,300 feet from drift mouth, 89½-inch cut).	Same (room 13, entry 3, 8,200 feet from drift mouth, 93-inch cut).	Same (room 62, main entry, 10,500 feet from drift mouth, 94;-inch cut).	Same (composite of Nos. 8429 and 8430)	Same (composite of Nos. 8451, 8452, and 8453)	Elk Ridge, Elk Ridge mine, Pocahontas No. 3 bed (pillar lar 38, off haulway 10, off "old" drift, 743-inch

888 888	988	086	080			686	080	080	686	686	596
		362	362	362	362			:	:	:	
	14,600 15,068 15,764	14,787 15,287 15,871	14,848 15,241 15,876	15,12,13 19,13,13 19,13,13 19,13,13 19,13,13 19,13,13 19,13,13 19,13,13 19,13	14,965 15,950 14,186	15,919					
	8,371 11,50 1,754	8, 215 8, 493 8, 817	8,249	(-'x x t	- xx xx - xx	% % ##					
ei ei ei	oi oi	23.5	ci :	00 -	4.0	- 6 - 6	oi ci	5.9	ci :	2.7	∞ ©i
	2.9.01 2.32 42.42			3.2.6							
Tilling	1.07			.98 1.05							
	84.46 91.15			81.73 84.84 91.03							
	844.			4.32 4.06 4.36							
05:5:5:5:5:5:5:5:5:5:5:5:5:5:5:5:5:5:5:	<b>2822</b> 288888	61. 16. 16. 17.	33.0	3.4.2.4	4444	<b>438</b>	32,28		34.05	5.54	54.45
4.4. 3.3. 3.3. 4.4. 3.3. 4.4. 4.3. 4.3.	444 444 88 241 428 88		3.90		6.37	4.13	4.34	4.04	4.91	4.11	4.19
28.28.28.28.29.3 28.28.28.28.3 28.28.28.3 28.38.4 38.38.4 38.38.4 38.38.4 38.38.4 38.4	3823852385 3822828283	8.50.73.55 83.30.45.55 83.30.45.55	72.48 79.54 85.54	25.25 25 25 25 25 25 25 25 25 25 25 25 25 2	82.69 74.07 74.58	8.5.2.2 2.5.2.2 3.5.2.2	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	12.22 12.22 13.23	81.58 81.31 81.31 81.31 81.31	68.83 885 885 885	88.73 8888
	4.6.4.4.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.			25.55 25.88 25.88 25.88		13.53 28.53 28.53					15.38 16.08
3.38	3.30	3. 27	2.58	3.67	4.52	2.62	2.71	3.39	3.36	3.27	3.33
	2-00-00-00-0	30-010			1010-01	ಬೆಟ್ಟ		) H () ()	0010	0-010	2000
4 4 4	4 4	٧	٧	0 0	0	4	4	4	4	<	4
8384 8385	8386 8463 10035	5789	5790	5829	5831	8052	8053	8054	8055	8056	8057
Same (room 4 off entry 1, 75%-luch cut)  Same (entry 4, between rooms 3 and 4, pillar workings, 774-inch cut).  Same (entry 64, 74%-inch cut)	Same (entry 8, between rooms 21 and 22, 74-inch eut). Same (composite of Nos. 8316, 8320, 8384-8386) Same (room 46, entry 6, "new drift side," 81-	=	Same (8,100 feet northeast of drift mouth, room 40 off cross entry 16, 772-inch section, 704-inch cut).	Same (run of mine, first car)	Same (run of mine, third car)	Same (room 53 off entry 12, 3,500 feet northeast of drift mouth, 904-inch out).	Same (room 43, off entry 14, 3,100 feet northeast of drift mouth, 74-foot cut).	Same (room 6 on entry 19, 6,300 feet east of drift mouth, 67-inch cut).	Same (room 1 on entry 18, 5,200 feet east of drift mouth, 68-inch cut).	Same (room 49 on entry 16, 5,400 feet east of drift mouth, 74-inch cut).	Same (room 49 on entry 10, 3,000 feet northeast of drift mouth, 934-inch cut).
		Ennis,									

Table of chemical analyses-Continued.

	Sa	Sample.			Proximate.	nate.			1	Ultimate.				Calorifi	Calorifie value.	Reference.	nee.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro-	Oxy-	Air- dry- ing loss.	Calo- ries.	British thermal units.	Barl- No.	Page of this bulletin.
WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.		! !			t												
Ennis, Turkoy Gap mino—Continued. Same (composite of Nos. 8652-8657)	8116	:	<b>→</b> 03	3.25	14.46 14.95	78.05	4. 24	0.48	4. 43	84.05	1.12	5.65	2.6	8, 367	14,571		686
Gilliam, Gilliam mine, Pocahontas No. 3 bed (cross entry 2, off main entry, 74-inch cut).	8366	4	m — 01 :	3.94	13.75	84.37	5.06	388		90.85	1.21	2.73	3.1	8,790	06) (of		166
Same (pillar on air course 41, 60½-inch cut)	8367	V	2 H 01:	3.81	13.39	80.82	5.46	34.43					3.1				166
Same (pillar on diagonal haulway 1, off main entry, 583-inch cut).	8368	< <	20 H 01 C	2.78	13.34	85.80 77.78 80.01 85.36	6.10	2345					- ci				166
Same (room 34, entry 10, off diagonal entry 1, 61-inch cut).	8369	4		3.03	13.48	80.87 80.87	5.48	34.4.5					च <sup>4</sup> ci				166
Same (room 9, entry 4, off diagonal 1, 641-inch cut).	8370	٧	; H C3 :	3.11	12:22:23	80.22	6.04	4.4.2					<del>ग</del> ೧۱				991
Same (composite of Nos. 8366–8370)	8462		o — o≀ o	3.38	23.33	80.28	5.89	94.13.	845	2383	1.09	2.42		7,962 8,241 757	14,832		991
Huger, North Side mine, Pocahontas No. 4 bed (left entry 1, 49-inch cut).	8735	٧	o → c1 c	2.1	13.0	800.00	÷ ÷ ÷	. 00 00 E									991
Same (left entry 2, 45½-inch cut)	8730	<	0 H 01:	25.00	13.00	82.5	4.7	32.53					2.0				166
Same (third left entry, 4-foot cut)	8731	٧	n → 010	63.		86.0 81.5	5.0	525.53					C.1				166
Same (main entry, 511-inch cut)	8740	<	n → 61 €	20.	13.00	85.0 86.5 86.5	4.9	3888					oi oi				166
Manual Cities and Joseph Conference of the Confe		+	10100		13.0	86.5	4.0	32									

992	993	993	994	994	900 F66
14, 690 15, 100 15, 860	14,700 15,120 15,810		14,410 14,830 15,790	14,380 14,870	15,810 14,510 14,920 14,480 15,000 15,790
8, 33, 160 3, 330 3, 330 3, 310 3, 31	8,8,8,8 7,4,00 7,80 7,80		8,010 8,240 8,775	7,990	200 200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2.0	2.0		C	2. 4. 2.	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2
2.2.55	2.2.9. 71.7. 8.8.		4.38 1.92 2.05		2.23 2.28 3.81 3.81
1.17	1.14		1.00		1.03
84.19 86.56 90.94	8 8 8 4 8 4 8 4 8 4 8 8 8 8 8 8 8 8 8 8		83.44 85.87 91.42	* * * * * * * * * * * * * * * * * * *	883 80.09 90.09 50.09 76.09
4.4.4.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	4 4 4 55 4 4 4 50 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		4.40		4.4.4. 4.2.4. 5.1.4.8
425.000000000000000000000000000000000000	58308998855	888958	88882275	3253322	6655888886669
60% 44 44 44 66 60 60 60 60 60 60 60 60 60 60 60 60	44 6.00 0.00 0.00 0.00 0.00 0.00 0.00 0.			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	31.0. 4.4. 8.1.0. 8.4.4. 8.1.0. 8.4.
88.00 88.00 88.00 88.00 88.00 88.00 88.00 88.00 88.00	2.50.00 2.00.0	87.0 87.0 87.0 87.0 87.0 87.0	81.9 87.0 77.65 84.24 84.24	82.0 82.0 73.0 82.0 80.5 80.5	86.25.02.57.55.55.55.55.55.55.55.55.55.55.55.55.
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4 4 4	4 4	4 4	< -	<b>4 4</b>	4 4
8729 8729 8728	8846 8444 8445	8446	8469	8709 8710	8795 8706 8708
Same (composite of Nos. 8730, 8731, 8735, and 8740).  South Side mine, Pocahontas No. 4 bed (first right entry, 5t-inch cut).  Same (cross entry 2, 491-inch cut)	. 8728, 8729, and 8739) 3 bed (east entry 2, ti, 553-inch cut). 0 feet from shaft, 573-	Same (east entry 3, 1,800 feet from the shaft, 55%-inch cut).  Same (main south entry, 700 feet from shaft, 60%-inch cut).	7)	from drift mouth, 672- feet from drift mouth, entry 2, 9,000 feet from cut).	. 8709 and 8710) tontas No. 3 bed (room t mouth, 68‡-inch cut). 3,000 feet from drift
Same (composite of Nos. 8730, 8731, 8740). th Side mine, Pocahontas No. 4 bed (entry, 56-inch cut). Same (cross entry 2, 49½-inch cut) Same (main south entry, 47-inch cut)	8728, 873 3 bed ( 5, 55½-inc	Same (east entry 3, 1,800 feet from the 55%-inch cut). Same (main south entry, 700 feet from 60%-inch cut).	8444-8447)	rom drift eet from entry 2, 9	8709 and 8710) ontas No. 3 bed ( mouth, 68f-inch 3,000 feet from
of Nos.	of Nos. tas No. the shaft	3, 1,800	of Nos.	1 mine, ) feet fr  0,000 fe  n 8 on e	of Nos., Pocahe m drift try 4, cut).
Stdo mine, Pocaho entry, Schinch cuit), ume (cross entry 2, ume (main south en	nposite cocahoniti from trinom	st entry cut). in sout cut).	nposite	KASTONE NO. 1 mine, (cntry 8, 11,000 feet finch cut). me (entry 5, 10,000 f. 13-inch cut). me (pillar, room 6 on infit mouth, 74½-inch autift mouth, 74½-inch au	nposite 2 mine, leet fro illar, en 71-inch
Same (composite of Nos. 8740). th Side mine, Pocahontas entry, 56-inch cut). Same (cross entry 2, 49½-i.	Same (composite of Nos. 8 1 mine, Pocahontas No. 1,000 feet from the shalt, Same (main entry, 2,200 inch cut).	ame (east ent 58%-inch cut). ame (main so 60%-inch cut).	Same (composite of Nos. 8444-84: Same (main entry 1, 58-inch cut)	b, keystone No. 1 mine, centry 8, 11,000 feet fi inch cut). Same (enfry 5, 10,000 f 71½-inch cut). Same (pillar, room 6 on c drift mouth, 71½-inch of	Keystone No. 2 mine, Pocah 10, 5,000 feet from drift Same (pillar, entry 4, mouth, 71-inch cut).
South S	Same (composite of Nos Jed, Jed mine, Pocahontas No 1,000 feet from the shan Same (main entry, 2,20 inch cut).	va va	<b>8</b> 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Keystone, Keystone No. 1 mine, (cntry 8, 11,000 feet finch cut).  Same (entry 5, 10,000 f 71½-inch cut).  Same (ellar, room 6 on drift mouth, 74½-inch cut).	Keyst St
99500°—B	ull .22—13—	18		4	

Table of chemical analyses—Continued.

ence.	Page of this bulletin.		994	992	995	995	583	995	995	995	966	966
Reference.	Bul- letin No.			:			:	:				
Calorific value.	British thermal units.		14,650	15,810				14,780	15, 860 14, 490 15, 050	14,600	15,830	* * * * * * * * * * * * * * * * * * *
Calorif	Calo- ries.		8,140	8,780				8,210	, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	8,115 8,385	8,795	
	Air- dry- ing loss.	c	25.5	2.5	2.4	2.5	2.4	2.2	3.1	2.5	1.9	1.7
	Oxy- gen.		5.50							6, 16	3, 53	
	Nitro- gen.		1.15	1.24						1.13	1.23	
Ultimate.	Car-		84. 17 86. 96	90.83						83.10 85.90	90.11	* * * * * * * * * * * * * * * * * * *
n	Hy- dro- gen.		4.48	1 1						4.55	4.54	
	Sul- phur.	9	33883	888	383	10 10 10 10 10 10 10 10 10 10 10 10 10 1	3888	388	388	3.75.75	<u> </u>	55.55
	Ash.	c	4. 12	5.4	2 4	9.4.8	44	4.0	4.5	4.52	5.85	5.23
nate.	Fixed car-	, 20	882.0 82.5 79.5 20.5 20.5	86.0 80.0 10.0 10.0	85.0 79.2 81.6	85.5 78.2 7.7	80.0 80.0	81.5	80.8 80.8	80.8	80.69 80.69	85. 85 80. 11 82. 03 86. 56
Proximate.	Vola- tile mat- ter.	2	13.0	0.50 0.50 0.50	13.5 14.0	24.1 24.1 5.0 5.0 5.0	15.0	24.41	14.00	14.0	12.96	12. 44 12. 74 13. 44
	Mois- ture.	-	63	3.2	.0.	3.2	3.3	2.9	о т	e0 60	2.59	2.34
	Con- cli- tion.	-	4000-0	100-01	2-0	en − en e	0-010	- 01	2 – 01	2-01	200	200
Sample.	Kind.	<	4	٧	٧	٧	٧	٧	4		4	4
o o	Lab- ora- tory No.	1010	8794	9998	2998	8671	8998	8670	8669	8725	8062	8661
	Locality, bed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.  Keystone, Kysstone No. 2 miner-Continued.	drift mouth, 674-inch cut).  Same (composite of Nos. 8707 and 8708)	Kylo, Lynchburg mine, Pocahontas No. 3 bed (main entry, 86-mch cut).	Same (cross entry 11 off main entry, 7½-foot cut).	Same (room 20, entry 9½ off main entry, 85-inch cut).	Same (left upland entry 9½, 7-foot cut)	Same (pillar 17, North Carolina entry, 82-inch cut).	Same (pillar 34, entry 6 off main entry, 7-foot cut).	Same (composite of Nos. 8666-8668 and 8671)	Landgraf, Empire mine, Pocahontas No. 3 bed (main entry, 71½-inch cut).	Same (diagonal entry 9, 714-inch cut)

966	966	9636	966	206	266	766	706	200	706	200	866	866	866	866	866	800
:				:	:		:	:				:	:	:		
	11,695	(4,1) (8,5) (8,0)	14,510	15,772					14,548	16,716 14,333 14,810	15,725 14,720 15,130	15,810				14,620 15,200 15,820
	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	(%) (%) (%) (%) (%) (%) (%) (%) (%) (%)	8,8,8 10,015 10,	8,762					8,082	8,228 2,228	8, 736 4, 175 405	8,780				8, 120 8, 440 8, 790
2.0	6 4 7	2.1	1.9	5.5	. ci	∞ ∵i	त	3.1	oi	2.5 20	01 01	21	3.1	3.0	3,1	3.1
			5.28 3.15							8.55 5.36 5.36						3.34
			1.12	1. 22					1.08	1.17	1.22					1.05
			83.28	90. 53					\$4.00 \$6.85	90, 75 82, 05 84, 85	90.09					83.35 86.66 90.24
			4.23	4.20					4.61	4.4.4. 8.4.5.	4.46					4.4.4.58.59.59.59.59.59.59.59.59.59.59.59.59.59.
29.8	55.55	95.	55.00	86.42	34.41	.45	244	÷ 2 4 4	& ÷ ÷	644	4.65	453	3881	888	322	32.23
5.09	3.98	1.7.	5.51	4.35	3.88	4.83	4.26	6.8	4.36	5.62	4 4 01 00	4.5	5.00	3.7	3.9	3.82
70.32	82.22 82.22 82.22	S 53.5	25.61 79.09 81.12	85.98 77.84 80.36	28.08 28.08 28.08 28.08	8.33	8.5.5.8. 8.0.6.8.	75.05 75.05 75.05 75.05	85.21 80.13	8.13 8.13 8.38	85.32 78.1 80.2	84.0 78.0 78.0 78.0	24.0	80.77.0	25.55 5.55 5.55	83.5 83.5
	13.25 22.25 3.22.25		13.23	14. 02 14. 81 15. 29	12.5	13.9			15.06 15.06 15.57	16.27 13.87 13.83			1555 5050 5000		16.5 14.0 14.5	15.0 16.0 16.5
2.60	3.06	2.87	2.50	3.14	3, 44	3.38	3.13	3, 93	3.28	3.30	1-	3.0	80 80	3.7	oc	80
-181	0-01c	0-01	2010	m-01	n 010	20 C3	20 m 010		10 - C1	ω−01	00 01	00 - 010	2-010		m-01	n – 01 m
4	4	4	:	<	4	4	4	٧			V	<	4.	4	4	
0998	8659	8658	6698	8499	8500	8501	8502	8533	2808	9898	8497	8498	8530	8531	8532	8672
Same (diagonal entry 5, 68-inch cut)	Same (pillar, between entries 18 and 20, off first diagonal entry, 784-inch cut).	Same (pillar, entry 8 off diagonal entry 1, 723-inch cut).	Same (composite of Nos. 8660, 8661, and 8662)	CDowell, McDowell mine, Pocahontas No. 3 bed (Scolland entry, 5,600 feet S. 80° E. from drift	Same (Ohio entry, 6,000 feet N. 78° E. from drift mouth, 57-inch cut).	Same (Pennsylvania entry, 5,400 feet S, 55° E, from drift mouth, 62½-inch eut).	Same (pillar, room 24, New York entry, 3,200 feet S. 45° B. from drift mouth, 594-inch cut).	Same (pillar, 6-foot cut)	Same (composite of Nos. 8499-8501)	Same (composite of Nos. 8533 and 8502)	14 miles east of; Greenbrier mine, Pocahontas No. 3 bed (pillar 4, off cross entry 4 off main en-	try 1, 69-inch cut). Same (pillar 3 on cross entry 6 off main entry 1, 604-inch cut).	Same (room 1 on cross entry 9 off main entry, 704-inch cut).	Same (eross entry 3, 65-inch cut)	Same (eross entry 2 off entry 34, 641-inch cut)	Sume (composite of Nos. 8498, 8530, 8531, and 8532).

Table of chemical analyses-Continued.

- once.	Page of this bulletin.		866	666	666	666	666	666	666	666	666	666	666
Reference.	Bul- letin No.			:	:	:	:			:			
Calorific value.	British thermal units.					14,690	10, 200	14,800	14,825	15, 773			
Calorif	Calo-					8, 160	0,000	8,220	8,236 8,487	8, 763			
4	Air- dry- ing loss.		67 67	2.7	3.0	3.7	∞ ci	2.7	2.5	3.5	3.5	2.9	3.6
	Oxy-gen.							2.84	5.31	2.85			
di di	Nitro-gen.							1.38	1.23	1.31			
Ultimate.	Car-							84.39	84.86 87.45	90.29			
	Hy- dro- gen.								4.5.03 4.84	1 1			
	Sul-		0.55	388	313.13.5	3,13,3	388	388	2.0.0	55.4.03	28.9	59.89	1375
	Ash.		3.1	3.9	3.7	8.8.	2.8	03.00	3.06	2.89	4.18	3.45	4. 20
nate.	Fixed car- bon.		78.5	78.25	80.3	81.1	78.1	83.5 81.2 81.2	79. 55 81. 98	84. 65 77. 32 80. 69	76.43	3.5.5 3.5.6 3.5.8 3.5.8	83. 42 83. 42
Proximate.	Vola- tile mat- ter.		15.5 16.0	16.5	15.0	15.0	15.5	15.0	16. 0 14. 43 14. 87	15.35 15.74 16.42	16.91 15.56 16.18	16.92 16.48 17.07	17.7 15.21 15.88 16.58
	Mois- ture.		3.0	3.4	3.7	4.4	3.7	3.5	2.96	4.17	3.83	3. 43	4.22
	Con- di- tion.		7.57	m → m	m-010	m 01 €	2-1-21	m 01	70 m cs	m − 03	10 m ca	es ← es	m=01m
Sample.	Kind.		4	4	₹	4	V		4	<	٧	4	<
02	Lab- ora- tory No.		8821	8822	8823	8824	8825	8933	8506	8507	8208	8209	8510
	Locality, bed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.	Marytown, Marytown mine, Sewell bed (crosseut on main entry, 6,100 feet S. 40° E. from drift	mouth, 47½-inch cut). Same (cross entry 3 oil left entry 12, 5,000 feet S. 45° E. from drift mouth, 39½-inch cut).	Same (last crosscut on right entry 12, 4.600 feet S. 35° E. from drift mouth, 46-inch cut).	Same (pillar, cross entry 5 off left entry 10, 3,600 feet S, 60° E, from drift mouth, 40-inch cut).	Same (room 2, cross entry 7 off right entry 11, 3,600 feet S. 15° E. from drift mouth, 3½-foot	cut), Same (composite of Nos. 8821-8823 and 8825)	Maybeury, near; Elkhorn mine, Pocahontas No. 3	room 6, 84-inch cu	Same (pillar, cross entry 16 near room 6, 1072-inch cut).	Same (pillar, on entry 14, 8½-foot cut)	Same (pillar, room 5, entry 2, section 95, 98-inch cut).

1000	1000	1000	1000	1000	1000	1000	1001	1001	1001	1001	1001	1001	1001	1001	1001
							:			:					:
14,605 15,208 15,809	14, 569	15, 799				14,699	15.844 14,267 14,798	15,653 14,670 15,179	15, 799						14,632 15,199 15,761
8,114 8,449 8,783	8,094	8,777				8, 166	8,802 7,926 8,221	8, 696 8, 150 8, 433	8,777						8, 129 8, 444 8, 756
3.4	3.0	2.8	2.5	3.1	2.3	2.7	3.1	2.8	3.2	2.9	2.4	3.8	 4.	3.0	3.1
2.59						5.09	3.23	25.55 25.55	2. 66						2. 55
1.12						1.02	1.12	1.13	1. 22						1.09
83.87 87.33 90.78						84.62	82.46 85.53	90. 47 84. 38 87. 31	90.87						84. 40 87. 67 90. 91
4.86								4.55							4.87 4.63 4.80
25.55 25.05	2223	.57		3881	56.	8 4 9 5	86.9	344	55.	5.5.4.5	55:	64.	इ.स. १३	33.23	52.
3.65	3.34	4. 68	4.04	3.67	3.98	3.97	5.26	3.79	3.88	3, 43	3.20	3.21	3.56	3.68	3.43
76.6 79.77 82.92 79.8	82.75 85.61 77.23 80.19	83.73	84.61 81.61	85, 16 78, 33 81, 41	84. 63 79. 04 81. 39	80.84	76.13 78.96	83.52 78.14 80.85	84, 15 78, 38 81, 53	80.68 80.68	80.83	81.66	24.0 77.2 80.37	74.02 77.02 79.91	81.25 84.25 84.25
15.78 16.43 17.08 13.41	13.91 14.39 15.00 15.58			44.44. 22.54.				16.23 15.23			5.23	14.33	15.29	15.68	14. 62 15. 19 15. 75
3.97	3.70	3.36	3.16	3.78	2.89	3.26	3.59	3.35	3.87	3, 45	3.08	4.49	3.95	3.62	3.73
	0100-01	m → 010	n → 010	n → 010	n-010	n ← 010	200	m = 01		2-010	2-010	2-010	2-101		2-0100
	<	V	¥	V	٧		V	4	4	4	V	V	V	V	
8588	8455	8456	8402	8403	8401	8472	7194	7193	8404	8405	8406	8332	8331	8330	8420
. 8507-8510)	bed (main air course off entry A, 3,500 feet from drift mouth, 694-inch cut). Same (pillar, room 6, entry 8, 4,500 feet from drift mouth, 694-inch cut).	Same (room 35, heading 2, 4,500 feet from drift mouth, 5-foot cut).	Same (entry 2 off Cherokee heading, 8,500 feet from drift mouth, 53-foot cut).	Same (entry 3, 8,000 feet from drift mouth, 631-inch cut).	Same (entry C, 8,000 feet from drift mouth, 614 inch cut).	Same (composite of Nos. 8454, 8456, and 8401–8403).	Norfolk mine, Pocahontas No. 3 bed (air course C-3, 2,600 feet east by 1,100 feet south, bed 8	feet 5% inches, 97%-inch cut). Same (400 feet off left entry 1, parallel to entry 18, 3,180 feet southwest, room 3, bed 8 feet	84 inches, 924-inch cut). Same (right cross entry 2, 4,500 feet from drift mouth, 97-inch cut).	Same (room 7, entry C-4, 4,000 feet from drift mouth, 1013-inch cut).	Same (room 9, entry B-1, 2,500 feet from drift mouth, 974-inch cut).	Same (chain pillar old main entry, 3,200 feet from drift mouth, 874-inch cut).	Same (right cross entry 1, 4,000 feet from drift mouth, 73-foot cut).	Same (heading 2, 4,500 feet from drift mouth, 861-inch cut).	Same (composite of Nos. 8404-8406 and 8330-8332).

Table of chemical analyses—Continued.

Reference.	Page of this bulletin.		. 1003	1003	1004	1004	1004	1004	1004	1004	1004	1004	1004
	Bul- letin No.									:			
Calorific value.	British thermal units.		14,560 14,990	15,810 14,460 15,140	15,800 14,520 15,150	15, 730			14,760	15,780			14, 480
Calorif	Calo- ries.	1	8,090	8,785 8,030 8,410	8,780 8,070 8,420	8,740			8, 200	8,765			8,045
	Air-dry-ing loss.		2.2	4.0	3.6	3.0	2.7	2.4	2.7	6.	2.9	2.9	3.1
	Oxy- gen.		5.10	2.78					2.83	3.08	0 0 0		2.56
•	Nitro-gen.		1.06	1.15					1.16	1.24			1.11
Ultimate	Car-		83.70	90.89					84.72	90.55			83.71
7	Hy- dro- gen.		4.46	4.49					4.54	4.45			4, 30
	Sul-		0.63	<u> </u>	38.5	.65	885	588	3.2.8	8888	535	58.8	3888
7	Ash.		5.05	4.2	3.7	3.2	3.0	800	3.22	44	5.2	8.8	4. 26
mate.	Fixed carbon.		79.0	80.8	84. 5 78. 7 82. 3	85.5 83.4 83.3	888 886 886 886 886 886 886 886 886 886	8 80.55 5 2 2 5 5 6 2 5	80°.0 80°.1 80°.1	85.5 82.6	86.5 78.2 81.1	85.5 79.7 82.5	86.0 82.6 5
Proximate.	Vola- tile mat- ter.	1	13.0	14.5 14.5 15.0	15.5 13.5 14.0	13.5 13.5	13.5	2.51 2.0.51 3.0.0	13.5	12.5	13.5	13.5	13.5
	Mois- ture.	1	2.9	4.5	4.2	3.5	63.63	3.0	3.3	4.1	3.6	3.5	3.7
	Con- di- tion.		-2	w c₁	8-8	m = 01	m=01	m = 01	2010	(C)	n ⊢ 01	10 H C3	m 02 c
Sample.	Kind.		Y.	4	<	¥	<	<		<	<	V	:
02	Lab- ora- tory No.		8776	8777	8521	8522	8523	8541	8678	8537	8536	8535	8684
	Locality, bed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.	Northfork, Northfork mine, Pocahontas No. 3 bed (Burke entry, 900 feet from drift mouth, 714-	men cut). Same (pillar 11 on dip entry, 5-foot cut)	Pageton, Page No. 1 mine, Pocahontas No. 3 bed (pillar, room 32, right cross entry 1, 2,700 feet	Irom drift mouth, 71-10ot cut). Same (room 33, right cross entry 4, 3,300 feet from drift mouth, 86-inch cut).	Same (room 21 on right cross entry 6, 3,800 leet from drift mouth, 87½-inch cut).	Same (left entry 6, 2,400 feet from drift mouth, 84½-inch cut).	Same (composite of Nos. 8522, 8523, and 8541)	Page No. 2 mine, Pocahontas No. 3 bed (cross entry 2, 1,700 feet from drift mouth, 7½-foot	Same (main entry, 1,600 feet from drift mouth, 92½-inch cut).	Same (room 9 on cross entry 1, 1,200 feet from drift mouth, 911-inch cut).	Same (composite of Nos. 8535-8537)

1001	1004	1004	1001	1006	1006	1006	1006	1006	1006	1000	1007	1001	1007	1007	1008	1008
i					:											:
			14,610	15,830 14,569 14,957	19, 860		14,740	40) (O)		14,630	14,530 14,930 15,782	14,270	14,500	14,590	15,812 14,650 14,950	15,803 14,690 14,960 15,803
			8,115	8,8,8,0 1,00,00 1,00 1,	8,797		8,194	6 : :		8,8,9 8,00 8,00 8,00 8,00 8,00 8,00 8,00	8, 2007. 2, 168.	7,928 8,111	8,111	8,759 8,106 8,267	8,784 8,139 8,306	8,779 8,161 8,311 8,779
3.2	2. 6	2.9	2.9	1.8	2.2	2.8	2.0	2.4	2.7	2.5						
			6.07	28.82	ž. (9					20.00						
			1.18	11.03	2					1.07						
				2888 8388 8388						84. 12 86. 97						
			4.60	48.44	4.0%					4.72						
.55	3335	53.83	323	3228	1899	3888	3935	38.28	:43:	55.50	3	888	2	55	888	.55 .55 .58
4; 4; 03 to	4.4. & 4.	4.2	4.12	5.44	4.5	4.4	4.42	- 6.		4.64	2.40	7.10	7.20	6.90	5.30	5.30
79.4	86.0 78.5 81.1	00 % 30 00 00 00 00 00 00 00 00 00 00 00 00	82.2	86.55 80.55 63.55	85.4 81.3 81.3	878.0 87.0 87.0 87.1 87.1 87.1 87.1 87.1 87.1 87.1 87.1	82.03 82.03	87.8 81.2 81.2 81.2	81.7	87.98 97.48	73.60 79.80	72.60	73.99	24.65 74.60 76.00	74.60	80.45 74.90 76.10 80.45
12.5	0 0 2 0	13.25.0	13.55 55.05 55.05	45.5 45.5 45.6	4.5.4.1 5.0.5	12.55	13.53		13.5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18.50 19.00 11.00	18.00		18.35		19.55 18.00 18.50 19.55
3.9	3.2	3.6	3.6	2.55	2.8	3.4	2.76	3.0	60	3.3	2. 70	2.30	2.40	2.00	2.10	1.80
-10		o ⊷ c1 c	, - c	m 01	m=00	2000	2-010	2000		2000	o — 61 co	-010	0 01	∞ <b>−</b> οι:	co — c1	
<	<	<		<	4	<	<	<	<		<	<	4	<	٧	<
8540	8539	8538	8685	8329	8328	8327	8-148	8419	8450	8427	650	649	651	652	654	653
Page No. 3 mine, Pocahontas No. 3 bed (main entry 2,300 feet from drift mouth, 83-ineh	Samo (room 9, cross entry 4, 1,700 feet from drift mouth, 784-inch cut).	Samo (right cross entry 2, 2,100 feet from drift mouth, 82-inch cut).	Same (composite of Nos. 8538-8540)	Powhatan, Powhatan mine, Pocahoutas No. 3 bed (pillar, room 3, left entry 5, 1,800 feet from	drift mouth, 734-inch cut). Same (loft entry 84, 2,400 feet from drift mouth, 83-inch cut).	Same (left entry 12, 5,700 feet from drift mouth, 70-inch cut).	Samo (pillar, room 9, on right entry 7, 3,300 feet from drift mouth, 713-inch cut).	Same (room 25, right entry 81, 3,800 feet from drift mouth, 831-inch cut).	Same (right entry 12, 5,600 feet from drift mouth, 71}-inch cut).	Same (composite of Nos. 8327, 8328, 8449, and 8450).	Roderfield, 6 miles from; Premier Pocahontas No. 1 mine, Welch or No. 6 bed (right 1, off left en- try 2, 1,150 feet southeast of drift mouth, 395-	Same (right entry 3, off main heading, 1,300 feet south of drift mouth, 34%-inch cut).	6 miles southeast of, Premier Pocahontas No. 2 mine, Welch or No. 6 bed (slope of left entry	2, 1,600 feet east of drift mouth, 52}-mon cut). Same (left entry 1, 1,400 feet east of drift mouth, 47]-inch cut).	7 miles southeast of, Premier Pocahontas No. 3 mine, Welch or No. 6 bod (left entry 2, 1,350	feet east of drift mouth, 41}-inch cut). Same (slope of left entry 1, 900 feet northeast of drift mouth, 48}-inch cut).

Table of chemical analyses—Continued.

ence.	Page of this bulle-tin.	1008	1009	1000	1009	1009	1000	1009	1009	1010	1010	1010
Reference.	Bul- letin No.	1	:	:		:						
Calorific value.	British thermal units.	14,530	15,776						14,510	15,800		
Calorif	Calo- ries.	8,072	8,764						8,060	8,780		
	Air- dry- ing loss.		3.1	3.5	3.4	2.9	3.0	3.7	3.3	3.3	2.9	2.8
	Oxy-gen.		0 0 0						6.09	2.67		
	Nitro-gen.		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						1.14	1.24		
Ultimate.	Car-		0 0 1 0 0 1 0 0 1 0 0 1						83.47	90.90		
	Hy- dro- gen.		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						4.68	- : :		
	Sul-	0.55	3433	35.53	54.5	45	34.00	388	32.25	35.25.	1.00	.47
	Ash.	5.80		4.0	5.0	3.0	3.9	4.0	4.1	4.03	5.42	3.72
mate.	Fixed carbon.	74.60	27.78	84.5	20.00 00.00 00.00 00.00	80.22	81.0 81.0	80.5 0.00 0.00	277.3	84.0 78.96 82.24	85.85 77.76 80.79	82.67.98 82.61.09
Proximate.	Vola- tile mat- ter.	17.50	19, 15	15.0	15.0	15.0	15.0	15.0	15.5	16.0 13.02 13.56	13.08	13.54
	Mois-	2.10	-	£. 3	4; C)	3.7	99	4.6	4.1	3.99	3,74	3.41
	Con- di- tion.	- = 0	3 m - 61	100-010	2000	m – e1	200	2-01	2-0	en − 01	m → e3 c	9-0m
Sample.	Kind.		<	<	4	4	4	٧		4	4	4
03	Lab- ora- tory No.	655	8411	8412	8413	8414	8415	8416	8417	8441	8442	8443
	Locality, bed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.  Roderfield, Premier Pocahontas No. 3 mine—Contd.  Same (composite of analyses 639-654)	Switchback, 4 mile northeast of, Delta mine, Poca- hontas No. 3 hed (chain nillar, cross entry 3.	4,500 feet from drift mouth, 101-inch cut). Same (entry 8, 7,000 feet from drift mouth, 97-inch cut).	Same (entry 8-2, 4,500 feet from drift mouth, 80-inch cut).	Same (main entry, 7,800 feet from drift mouth, 773-inch cut).	Same (dip entry, 7,000 feet from drift mouth, 71-inch cut).	Same (pillar, room 3, cross entry 5, 2,000 feet from drift mouth, 89-inch cut).	Same (composite of Nos. 8411-8416)	Imile southeast of: Shamokin mine, Pocahontas No. 3 bed (pillar on St. Louis entry, 4,200	feet from drift mouth, 924-inch cut). Same (room 4, new drift, 3,000 feet from drift mouth, 884-inch cut).	Same (pillar, room 14, on Coney Island entry, 2,000 feet from drift mouth, 7-foot cut).

	ANALY	SES OF C	JUALS I	NIDE	UNITED	STATES.	209
1010	1010	1011	1011	1011	1011	1012	1012
		385					
	14,661 15,246 15,878 14,632 15,178	15, 817 14, 715 15, 172 15, 952			14,659 15,200 15,860 14,652	15,836 14,530 15,120 15,760	
	8, 145 8, 470 8, 821 8, 129 8, 432	8, 787 8, 175 8, 429 8, 862			8,135 8,440 8,815 8,140 8,140	8,798 8,075 8,400 8,755	
3.1	3.0	4 4	2.7	7 m	2. 2. 4. 2. 4	60 61 61	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2
	25.1.2 25.45 25.45 25.45	2. 45			7.2.2.2.2. 7.2.2.2.2. 7.2.2.2.2. 7.2.2.2.2	3.16	
	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	1.23			1.02	= : : : : : :	
	84.27 87.63 91.26 84.16 87.30	86.06			84.25 91.26 88.66		
	5.06 4.81 4.81 4.81				17.4 17.4 17.3 1.73		
#586446625 #586766	888188	244468	888888	5588888	542888	\$355558	85.58 883.38
6.6. 2.9. 6.6 4.7 2.8 2.8 2.8 2.8		4.4. 4.8. 5.3.	4.4 W.	3.95 4.08 4.65	4.21	61.4	0.4 0.00 0.4 0.4
23.88.90 23.83.90 23.90 23.83.90 23.83.90 23.83.90 23.83.90 23.83.90 23.83.90 23.83.	85.84 78.34 81.47 84.85 78.58	24.94 76.31 78.73 82.73 81.5 91.5	85.0 785.0 785.2 78.7	85.0 85.0 85.03 77.21	8 2 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2.67.88.25.65.65.00 1.67.67.67.67.67.67.67.67.67.67.67.67.67.	83.5 77.6 83.5 79.6
14.97 15.56 16.13 13.91 14.93 13.26	41.55 13.99 13.55 15.99 15.93 15.93	15.94 15.94 17.27 14.0	14.5.0 14.5.0 1.0.	15.0 13.9 14.97 15.17	16.42 13.5 14.0 14.51	15.05 17.05 16.05	16.5 16.5 17.0 17.0
3.77	3. 60	3.3	3.8	3.18	3.6	c. 4.	£
	100000000	m-01m-01	m → 01 m → 0	30-00-0	ee = 01 ee = 01	16-96-91	<b>800</b> - 00
4 4 4		4 4	< <	4 4		< <	< <
8398	8474	8378	8379	8359	8457	8850	8853
Same (old main entry, 6,400 feet from drift mouth, 92-inch cut).  Same (entry 14-1, 6,400 feet from drift mouth, 74-inch cut).  13. Staniec (claim pillar, near room 8, on left entry last staniech cut).	Same (composite of Nos. 8398-8400 and 8442)	#mile south of; Lick Branch mine, I mile west of drift mouth, entry 9, Pocahontas No. 3 bed, 1018-inch cut. Same (room 3, entry 2, 1,500 feet from drift mouth, 93-inch cut).	Same (straight entry 8, 2,500 feet from drift mouth, 94-inch cut).  Same (room 19, entry 8-1, 3,500 feet from drift	Same (chain pillar, left entry 9, near room 28, 6,200 feet southeast of drift mouth, 913-inch ent).  Same (pillar, room 13, left entry 9, 5,200 feet southeast of drift mouth, 86-inch ent).	Same (composite of Nos. 8378-8380)	vin Branch, Twin Branch mine, Sewell bed (pillar, night entry 4 off main entry, 2,000 feet N. 80° E. from clift mouth, 34-606 cut). Same (right entry 8 off main entry, 3800 feet N. 65° E. of drift mouth, 35-inch cut).	Same (main entry, 3,200 feet N. 45° E. of drift mouth, 41-inch cut).  Same (entry 32, 4,100 feet N. 30° E. from drift mouth, 38-inch cut).

Table of chemical analyses—Continued.

U	ANALI	
ence.	Page of this bulletin.	1012 1013 1013 1013 1014 1014 1014 1014
Reference.	Bul- letin No.	
Calorific value.	British thermal units.	14, 750 15, 270 15, 280 15, 880 14, 980 15, 940 15, 940
Calorifi	Calo- ries.	දැනුතු 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	Air- dry- ing loss.	
	Oxy- gen.	89.99 8.85 8.82
	Nitro-gen.	1.350 1.355 1.451 1.451 1.451
Ultimate	Car-	988 988 99.55 90.988 988.54
1	Hy- dro- gen.	10.44.4.4.4.557 6.557 7.707 7.
	Sul-	977883888888888888888888888888888888888
	Ash.	86 01 01 100 800 100 800 800 40 100 44 100 100 100 100 100 100 100
nate.	Fixed car-	7.5.8.8.8.7.5.8.8.7.5.8.8.8.8.8.8.8.8.8.
Proximate.	Volatile matter.	25000000000000000000000000000000000000
	Mois- ture.	4 6 0 1 1 8 0 4 1 0 0
	Con-di-	
Sample.	Kind.	4 4 4 4 4 4 4
002	Lab- ora- tory No.	88554 88555 88556 88577 88581 8581 8581 8581 8581
	Locality, bed, etc.	WEST VIRGINIA—Continued.  M'DOWELL COUNTY—continued.  Same (composite of Nos. 8851-8853)

1014	1014	1014	1015	1015	1015	1015	1015	1015	1015	1015	1016	1016	1016	1016	1016	1016
:	-					:				:		:		:	:	
	14,660	15,790	15, 780						14,720	15,780	15,780			15,000	087 °CI	14, 590 14, 980 15, 790
	8,87 386 386	8,770 8,085 310	8,765					0 0 0	8,175	8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.	8, 765			8,330	8,770	8, 106 8, 320 8, 775
1.6	0.1 0.3	2.1	T ci	1.3	2.1	2.3	c≱.	2.2	1.7	60	2.0	2.0	1.5	1.3	1.8	1.9
	6.10	8.88	27.77						2.71	248	8 : :					
	10.7	11.00	1.21						1.09	1.13	T	: :				
	8.8	26.23	90.99					0 0 0 0 0 0 0 0 0 0 0 0	84.78 86.76	88.88 88.88	89.37					
	4.37	4.37	4.37					0 0 0 0 0 0 0 0 0 0 0 0	4.43	44.4.	4.52					
888	388	228	88888	333	388	388	35.55	58.85	58.5	5.8.8		20.00	5888	3:8:8:	388	3225
5.5	4.31	5.05	4.4.	4.8	4.6	4.5	5.5	4.7	4.44	4.75	5.4	5.5	57 ES	4.9	7.4	5.0
81.9	8.86. 8.6. 1.4.	20.2 20.2 30.2	8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8.	25.50 2.1.00 2.1.00	0.000	79.7	87.8° 87.8° 81.0° 80.0° 81.0°	878.0 80.7 80.7	88.89 8.29 8.20 8.20	88.28.88 8.5.98 8.5.18	86.0 80.5 85.0	77.4	20.22	86.89 9 81 80	8.83	85.0 85.0
555	15.55 5.55 5.55	13.5	11. 12. 13. 13. 13. 13. 13. 13. 13. 13. 13. 13	18.4. 0.0.0.	12.23.23.23.23.23.23.23.23.23.23.23.23.23	13.0	1881 0000	14.4	13.5	3 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	14.0 14.0 15.0	14.5	2.5.4.1	14.0	14:0	15.0
0;	2.8	2.7	2.7	1.9	ei ci	2.8	3.1	2.7	2.3	2.9	2.7	2.6	2.1	1.9	2.4	3.6
	0-01	es − es	1 co co c	n → 01 0	200	2-01	co — co e	2-010	2-01	es es e	m = 01 m	-010	9-81	~ ~ ~ ~	2-01	n → 61 m
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8583	8673	8674	8573	857.4	8575	8576	8577	8524	SGS1	8680	8898	F698	8695	8647	Seas	8649
Same (break-through, cross entry 9, 12,500 feet N. 63° E. of drift mouth, 65-inch cut).	Same (composite of Nos. 8571 and 8584)	Same (composite of Nos. 8581-8583)	Tidewater mine, Pocahontas No. 3 bed (pillar 2 off cross entry 1, 60}-inch cut).	Same (pillar, near room 16, cross entry 3 off main entry, 632-Inch cut).	Same (pillar 10, off cross entry 9 off main entry, 612-inch cut).	Same (main entry, 60½-inch cut)	Same (north entry 3 off cross entry 11, 61!-inch cut).	Same (north entry 7 off cross entry 10, 572-inch eut.).	Same (composite of Nos. 8573-8575)	Same (composite of Nos. 8576, 8577, and 8524)	West Vivian, I mile west of. King mine, Pocahontas No. 3 bed (south air course 2 of cross entry 1 off main entry, 2,900 feet east of slope,	Same (cross entry 1, 4,600 feet N. 80° E. of slope, 62-inch cut).	Same (main air course, 5,200 feet N. 45° E. of slope, 59-inch cut).	Same (room 12 on north entry 3 off switchback entry, 5,300 feet S. 75 E. of slope, 614-inch	Same (north entry 4 off switchback entry, 4,600 feet S. 85° E. of slope, 643-inch cut).	Same (room 31 on north entry 3 off swifehback entry, 4,700 feet S. 53° E. of slope, 67-inch cut).

Table of chemical analyses—Continued.

		7 (6)	5000	Checuter	take of meneral analyses	osofin	COLLE	continuon.									
	<u> </u>	Sample.			Proximate.	mate.			n	Ultimate				Calorifi	Calorific value.	Reference.	nce.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois- ture.	Vola- tile mat- ter.	Fixed car-	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy- gen.	Air-dry-ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this pulle-tin.
WEST VIRGINIA—Continued.  West Vivian, King mine—Continued.  Same (composite of Nos. 8648, 8684, and 8695).  Worth, 2 mile northwest of; Indian Ridgemine, Pocase095).  Worth 2 moits No. 3 bed (pillar 106, off cross entry 3, 452-inch cut).  Same (butt entry 3 off Salem air course, 523-inch cut).  Same (north entry 4, 514-inch cut).  Same (north entry 4, 514-inch cut).  Same (composite of Nos. 8360-8362 and 8525)  Zenith (Crumpler station), about 4 miles northeast of McDowell, Pocalonias No. 3 bed (Zenith No. 2 mine, 523-inch cut).  Same (Zenith mines 1 and 2, run of mine)  Same (Done coal).	8723 8360 8361 8525 8525 8592 11234 1235 4231	4 4 4 4 4 4 0 0	напнапнапнапнапнапнапнапна	23 22 23 23 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25	######################################	85.885.5428.888.888.884.484.488.888.444 68.90.0000000000000000000000000000000000	66 66 44 777 44 727 75 75 75 75 75 75 75 75 75 75 75 75 75	872844444488888884448888888	444 444 4664 684 466 686 466 466 686 466 466 466 466 466 466 466 466 466	88. 39 99. 554 88. 88. 88. 88. 88. 88. 88. 88. 88. 88.	11.13 11.00 11.04 11.04 11.04	4444 7444 5444 5114	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$\text{\$\text{\$\pi}\$} \text{\$\pi\$} \$\p	14, 580 14, 580 14, 500 14, 500 14, 500 14, 500 16, 934 17, 127 15, 934 16, 938 17, 127 15, 938	33 48 52 58 58 58 58 58 58 58 58 58 58 58 58 58	1016 1017 1017 1017 1018 1018
Kingmont, west bank of Tygart River, Kingmont mine, Pittsburgh bed (room 20 on right entry 2, 87½-inch section, 86-inch eut).	1088	V	<b>⊣</b> ≈≈	1.40	36.65 37.17 39.86	55.28 56.07 60.14	6.67	1.59			1.43		77	7,813 7,924 8,499	14, 063 14, 263 15, 298	261	1018

1018	1019	1020	1020	1021	1021	1021	1021
261 261 48	290 290 290 290 290						
14, 107 14, 359 15, 349	15,467 14,458 14,458 15,361 13,093 13,865	15, 370 13, 941 15, 111 15, 111 14, 323 15, 219					14,602 15,120 15,791
7,837	8,590 6,800 6,000 6,000 6,000 7,77 7,77 8,000 7,77 8,000	8,539 7,745 8,395 7,745 8,455 8,455 8,455		: :			8, 112 8, 400 8, 773
₹ ₹	H H H	1.2	1.40	3.0	ci ci	or or or	2.7
7. 94 6. 49 6. 94	7.02	7.32					2.75
1.57	1.66 1.55 2.1.55	1.72					1.06
78.00 79.39 84.86	85. 70 72. 74 77. 03	85.70 74.99 77.41 83.90					83.79 86.76 90.61
5.728	5.59 5.72 1×22 1×22	5.36					4.57
1.33	69 1.06 1.10 1.20 1.20	1.01 77 79 84		77.	201725	62 52 54 54 54 54 54 54 54 54 54 54 54 54 54	2080
6. 42 6. 51 6. 34 6. 45	88 57 57 88 8 8 8 8 8 8 8 8 8 8 8 8 8 8	7.74	6.59 6.77 5.93 6.10	4.20	4.63	4.19	3.37 4.10 4.25
54.88 55.63 59.50 55.14 56.13 60.00	56.86 62.21 62.21 55.78 55.78 60.80 60.80 57.67	56.41 58.22 58.22 59.83 63.57		78.20 81.24	84.94 77.65 79.95 83.83 77.10	83.24 77.10 79.96 83.60 77.62	80.46 83.27 77.89 80.65 84.23
37.35 37.86 40.50 36.77 37.42 40.00	35.57 35.97 35.97 36.96 33.47	36. 43 36. 43 36. 43 36. 43 36. 43		13.86 14.40	15.06 14.98 15.17 15.17 16.02	16.76 15.13 15.69 16.40 15.60	16.17 16.73 14.58 15.10
1.35	2.89	3.13	2.59	3.74	2.87	3.58	3.43
100100	4-00-00-00	4-00-00	-010-010	757	m 01 m 01	64664	20000
<b>4</b> 0	4 4 0	4 4 4	а д	4	٩ . ٩	4 4	
1089	2041	7586	7418	8387	8388	3391	8468
Same (room 14 on left entry 4, 363-inch bed, 854-inch cut). Same (run of mine, 30 tons)	Monongah, Monongah No. 6 mine, Pittsburgh bed (5,000 feet southwest of drift mouth, room 2 on right entry 3, 91-inch bed 73-foot eut). Same (5,000 feet northwest of drift mouth, room 1 off left entry 3, 73-foot bed, 89½-inch cut).  Same (lump, over ‡-inch screen)	o. 8 mine, Pittsl ppening, north fainch cut). the entry 3 off z-inch cut).	Same, 3,900 leet northwest of opening, from face of north entry 3.  Same, 3,400 feet northwest of opening, from air course 3, oif south heading 2.	MERCER COUNTY.  Coaldale, Coaldale mine, Pocahontas No. 3 bed (pillar room 8, entry 5, 1284-inch cut).	Same (pillar, room 16, on left entry 9, 1064-inch cut).  Same (pillar, room 16, on left entry 12 94-foot cut).	Same (pillar, room 1, on right entry 13,985-inch cut). Same (pillar, room 17, on right entry 55, 103-	Same (composite of Nos, 8387-8391)

Table of chemical analyses—Continued.

	ďŽ	Sample.			Proximate.	mate.			ב	Ultimate.	.,			Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion.	Mois-	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car-	Nitro- gen.	Oxy- gen.	Air-dry- ing loss.	Calo-	British thermal units.	Bul- letin No.	Page of this bulle-tin.
WEST VIRGINIA—Continued.		-															
MERCER COUNTY—continued.  Coopers, 1 mile northwest of; East Mill Creek mine, Possbontas No. 3 had (rillar room 4 on	8397	4			14.58	76.09	4.8 8.8	0.69					3.8	7,920	14,256		1021
cross entry 2, 107-inch cut). Same (Taber entry, 800 feet north of Taylor entry, 74-foot cut).	8396	⋖	100 01	3.78	16.08	76.80	4.02	28. 48. 78.	4.44	84.04 87.34	1.15	5.26	3.1	8,735 8,118 8,437	15,623 14,612 15,187		1021
West Mill Creek mine, Pocahontas No. 3 hed (pillar, room 16, on Gammon's entry, 110-inch cut).	8394	٧	m → 01 0	2.93	16.98	58.75.88 78.12 14.12 14.12	5.01	58.83	4.63	91.15	1.25	2.06	62	8,805	15.849		1021
Same (pillar, room 17, on Keystone entry, 83-foot cut).	8395	4	2-01:	3.72	15.55	25.55 25.55 25.55 25.55	5.05	82.28					3.0				1021
Same (tunnel entry, heading for entry 7, 109-inch cut).	8392	V	2-010	3.25	15.38	80.17	3.93	* 3 % %					61				1021
Same (pillar, room 9, on Jackson entry, in west fork drift, 1074-inch cut).	8393	٧	2-01c	2.98	15.888	76.74	3.93	8699					2.3	8,164	14,695		1021
Same (composite of Nos. 8392, 8394, and 8395)	8476		० नाटा	3.20	15.89	76.45	4.62	58.8	4.83	82.96	1.10	2.90	2.6	8,327	14, 508 14, 989		1021
Goodwill, 4 mile north of, Goodwill mine, Poeahontas No.3 bod (cross entry 3, off Jewells haulway, 2,200 feet north of the drift mouth, 503-inch	8718	٧	ಐ⊣ಣಣ	m m	17.02 15.0 16.0	82.98 78.4 81.1 84.0	80 eq.	87333	4.85	99.00	1.20	3.05	2.5	8,744	15, 739	•	1023
Same (Smith's entry, 2,900 feet northeast of drift mouth, 53½-inch cut).	8712	4	H 03 0	8::	15.5	77.7	0.1.	8.83					2.0				1023
Same (pillar, room 1, middle drift, 2,500 feet N. 80° E of drift mouth, 522-inch cut).	8713	4	o01:	2.9	15.0	80.73	2.0 2.0	5.25.25					2.0	8, 185	14,730	;	1023
Same (composite of Nos. 8712 and 8718)	8834		0 H 07 0	3.1	15.0	80.1	3.89	988	4.51	81.93	1.03	4.99	2.3	8,175	14, 720		1023

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1024	1024	1024	1024	1024	1024	1024	1024	1024	1025	1025	1025	1025	1025	1026	1026	
														261	261	261
					14,830	15,870 14,850 15,310	15,880 15,810 15,310	15,850 14,740 15,210	15, 790				14, 391	15, 784	14,924	15, 971 15, 023 15, 291 16, 291 16, 110
					8, 235			8, 805 8, 185 450	8, 770				7.995	8,769	8, 291	8, 873 8, 346 8, 495 8, 910 8, 950
2.3	2.3	2.1	2.1	2.2	C3	2.3	2.6	2.3	2.8	2.4	2.9	2.7	2.7	63	2.4	1
					5.48	2.34	25.52	2.63					5.38	2.58		2.2.80 2.80 2.81 8.81
					1.10	1.17	1.20	1.13					1.10	1.21		1.06 1.08 1.13 1.14
					84.55	84.82 87.44	90.68 85.06 87.94	91.06					\$2.86 \$5.78			81.97 86.48 90.71 91.26
					चंच	चं चं चं 		4 : :					4.60	4		4.65 4.74 4.79
.55	25.55	383	5.2.2.6	38.63	.53	55.57	848	88.88	3.5.8.	8:6:6:	5.888	2.563	25.8	57.2	2,8,5	.51 .56 .57
4.73	လယ့ ယ 4.	4.1	3.6		3.68	3.46	3. 43	3.6	4.84	4.89	5.86	5.93	5, 42	3, 13	3.62	
79.5 82.0 85.0	81.6	2.0%	2.08.09.09.09.09.09.09.09.09.09.09.09.09.09.		20.7 79.4 71.7	85.0 79.50 81.9	85.0 79.9 82.6	8.79.55 2.29.55 3.30.55	85.5 82.35 82.30	86.65 79.80 82.43	87.8.0 87.2.10 12.2.10	86.51 81.43	86.78 81.02	85.84 74.74 76.76	79.31	80.63 75.08 76.42 80.15
14.0 14.5 15.0	15.0		12.5	1221	11.0	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	13.50	14.5 13.5 14.0	12.23	13.35 12.27 12.68	12, 67	12.00	13. 24 13. 91 13. 37	14. 16 19. 50 20. 03	20.69 18.10	19.37 18.59 18.92 19.85
3.1	3.0	3.0	2.9	3.0	2.9	3.0	3.3	3.1	3.58	3.20	3.86	3. 43	3.41	2.63	2.94	1.75
H0100	100	24010	n → 010	2 C3 C	2 - CI	o c₃:	n 01	e − e 1	20-03	e - 01	2000	20-0	20-02	ro — co	ಣೆಗಳು	n-004
4	٧	٧	4	٧			V	4	4	4	<	<	-	4	٧	0
8717	8721	8715	8719	8720	8791	0628	8714	8716	8374	8375	8376	8377	8461	1214	1240	1471
4 mile northwest of; Louisville No. 2 mine, Pocalonts No. 3 bed (room 11, on left entry 6, 4,300 feet N. 40° E. of drift mouth, 522-inch	Same (pillar, room 22, off left entry 4, 3,350 feet N. 15° E. of drift mouth, 44-foot cut).	Same (left air course 7, 4,500 feet N. 45° E. of drift mouth, 514-inch cut).	Same (left entry 3½, cut-off, 2,750 feet north of drift mouth, 43-foot cut).	Same (pillar, room 3, on right entry 5, 3,300 feet N. 45° E. from drift mouth, 503-inch eut).	Same (composite of Nos. 8715, 8717, and 8719)	Same (composite of Nos. 8720 and §721)	1 mile northwest of; Louisville No. 3 mine, Pocalionitas No. 3 bed (right entry 4, 1,700 feet N.	15° W. of drift month, 613-inch cut). Same (pillar, left entry 3, 1,400 feet N. 80° W. from drift mouth, 573-inch cut).	Hiawatha, Hiawatha mine, Pocahontas No. 3 bed (left air course 1, 1,300 feet north of drift mouth,	53-metr cut). Same (room 3 on left entry 2, 1,400 feet northeast of drift mouth, 533-inch cut).	Same (main entry, 2,400 feet northeast of drift mouth, 55½-inch cut).	Same (pillar, room 12 on right entry 2, 1,800 feet east of drift mouth, 53\frac{1}{2}-inch cut).	Same (composite of Nos. 8374-8377)	Mora (McComas post offico), experimental drift, No. 6 bed, (midway between entrance and face	of drift, 37‡-inen cut). Same (face of drift, 47-inen cut)	Same (over §-inch screen)

Table of chemical analyses—Continued.

ence.	Page of this bulletin.		1026	1026	1026	1026	1026	1026	1027	1027	1027	1027	1027
Reference.	Bul- letin No.												
Calorifie value.	British thermal units.		14,679	15,772	15,808 14,490 15,086	15,822 14,521 15,026	15,748 14,560 14,969	15, 782 14, 584 15, 102	15,809 14,848 15,300	15,826 14,778 15,269	15,804 14,672 15,239	15,779 14,710 15,136	15,754 14,828 15,257 15,786
Calorifi	Calo-		8,155	8,762		8, 790 8, 067 8, 348	8,749 8,089 8,316	8,768 8,102 8,390	8,783 8,249 8,500	8,792 8,210 8,483	8,780 8,151 8,466	8,766 8,172 8,409	8,752 8,238 770 770
	Air-dry-ing loss.	1	3.1	2.7		2.9	2.3	2.9	2.5	oi oi	3.4	2.5	2.4
	Oxy- gen.							5.58	2.74				
	Nitro- gen.							1.08	1.17				
Ultimate.	Car-		0 0					83.75	90. 78				
5	Hy- dro- gen.					0 0 0 0 0 0 0 0 0		4.49	2::				
	Sul-		0.58	. 555	26.53	£ 86 8		52.52	19:52:	52.55	52.05	55.55	8488
	Ash.		3.49	4.02	4.47	4. 43	5.02	4.32	3.22	3, 37	3, 29	3.81	3.26
ate.	Fixed car-	I	77.01	32.75 76.06 78.06	31.92 75.61 78.73	32. 57 75. 62 78. 25	32. 01 76. 48 78. 63	28.591 76.24 78.95	32.64 30.38 30.38	33.09 77.44 30.01	32.81 77.50 80.50	38.35 77.26 79.50	80.05 77.73 77.73 77.73
Proximate.	Vola- tile mat- ter.												17.26 16.20 16.65
	Mois-		3.44	3,14	3.96	3.36	2.73	3.43	2.96	3.22	3.73	2.82	2.81
	Con- di- tion.		- 67	: : : : : : : : : : : : : : : : : : : :	100-01	en = 01	1 1	e> → e3	en − e1	m → 63	; ; n⊣n	: :: ?? ⊷ ??	m == €1 m
Sample.	Kind.		4	4	<	∢	4	4	V	<	4	∀	4
Sa	Lab- ora- tory No.		10413	10414	10416	10415	10417	10436	10418	10419	10420	10421	10422
	Locality, bed, etc.	WEST VIRGINIA—Continued.  MERCER COUNTY—continued.	Mora, experimental drift—Continued.  § mile west of, Crane Creek Nos. 1 and 2 mines, Poenhontas No. 3 bed (cress entry 14, 3.20)	feet northwest of drift mouth, 50k-inch cut). Samo (main beading 1, 4,300 feet north of drift mouth, 50s-inch cut)		northeast of drift mouth, 49g-inch cut). Same (Ozark heading, 4,400 feet northeast of drift mouth, 54-inch cut).	feet north of drift	Same (composite of Nos. 10413-10417)	1 mile north of, Pinnaele mine, Pocahontas No. 3 bed (cross entry 1, 3,300 feet east of drift	mouth, 443-inch cut). Same (pillar on right entry 4, off entry 13, 1,500 feet northeast of drift mouth, 523-inch cut).	Same (Thomas heading, 3,600 feet north of drift mouth, 494-inch cut).	Same (Cobbler heading off main heading 2, 2,900 feet east of drift mouth, 434-inch cut).	

1027	1028	1028	1028	1028	1028	1028	1028	1028	1029	1029	1020	1020	1029	1029	1029	1020
-	:	:														
14,697	15,777			14,740 15,280	15, 790			14,670	15,800						14,540	15,730 14,740 15,170 15,770
8,165	8, 765			8, 190	8,770			8,150	8,780						8,365	8,740 8,190 8,430 8,765
2.9	3, 8	& & .	3.1	3.0	3.1	4.1	2.5	3.4	3.0	3.0	2.6	2.6	1.6	2.3	2.9	2.2
2.05	2.18							7.30	4.21							22.55
1.09	1.17							1.11	1. 19						1.09	1.18
85.04	62.16							82.67 85.97	89.06						83.28	90.09 84.84 87.30 90.76
4.86	4.81							4. 52	4.68						4.61	4.4.4.4. 86.84 84.84 86.84
12:31	388	8221	588	88.88	388	333	888	888	888	88.88	888	888	888	हरह	355	550
3. 45	3.5	20.00	~ ∞ ~ ∞	2.2	3.1	3.0		3.34	~ × ×	44	3.6	3.9	3.6	4.1	4. 28	3.81
76.99	3 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	25.55 50.00 50.00	\$25 200 200 200 200 200 200 200 200 200 2	0 4 8 6 0 4 8 6	% & % ⊃ ≈ 4	8.68 0-10	85.5 79.0 7.1	85.0 8.25.0 4.0	%.7% %.7%	26.73						85.5 79.5 81.7 85.0
	13.5				0 0 4 4 4 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13.0	444 200	0.5.5.0	14.0	2.5.0 2.0.0 2.0.0	3.5.5.5. 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.		4.2.2. 0.0.0		1.5.4 5.5.0	
3.40	4.5	4.4	3.7	3.5	00	4.6	3.3	8	3.7	3.7	3.2	3.2	2.3	2.9	دن 4	00 01
-010	n 010	2 01:	2 - C3	m — 01		m → c3	m − 01	m=01	2 - C1	m=01	n=01	n-101:	2000	ಣ್ಣಣ	2-01	m=0m
<	<	<	<	<	<	<	<		<	4	<	<	<	<		
10437	8564	8565	8566	8570	8567	8208	8569	8675	8549	8550	8551	8552	8553	8554	8683	8682
10418-10422)	Buckeye mine, Pocamons's entry, 724-inch	immons entry, 5½-foot	entry 5, 52-foot cut)	Nowman entry, 674-	tt's entry, 674-inch eut).	foot cut)	entry 3, 58-Inch cut)	8564-8569)	h-Bowen mine, Poea- ry 9 off Bird Hunter's	unter's ontry, 551-inch	Kansas City entry,	Yukon entry, 844-inch	971-Inch cut)	n Meadow's entry,	8549-8551)	8552-8554)
Same (composite of Nos. 10	Simmons, 13 miles northwest of; Bu hontas No. 3 bed (Simmon March 1988)	(cross entry 7 off S	Same (room 10 off cross ent	Same (pillar, room 11 on N inch cut).	Same (room 8, on Bennett's	Same (Price's entry, 53-foot	Same (room 11 on cross entr	Same (composite of Nos. 856	2 miles northwest of; Booth-B hontas No. 3 bed (entry 9	entry, 68-inch cut). Same (entry 6 off Bird Hunt cut).	Same (butt entry 9 off K 553-inch cut).	Same (pillar, room 9 on Yul cut).	Same (pillar 3 on entry 35, 9	Same (pillar, room 21 on 84g-inch cut).	Same (composite of Nos. 854	Same (composite of Nos. 85
		9500°	—В	ull. 2	2—1	3	<b>–1</b> 9									

Table of chemical analyses-Continued.

			02 00		441		0 11				J.		
Reference.	Page of this bulle tin.		1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030
1	Bul- letin No.												:
Calorific value.	British thermal units.				14,470	15,770	14,500	15,730 14,670 15,220	15,810 14,710 15,300	15,840			14, 470
Calorif	Calo- ries.				8, 037	8,760	8,055	8,150 8,455	8,8,8,8, 170 500 500	8, 800			8,040
	Air- dry- ing loss.		3.1	2.7	4.6	2.6	3.7	3.0	62	3.1	3.9	8.4	. co
	Oxy- gen.	-						5.01	1.90				8.10
و	Nitro- gen.			1 0 0 0 0 0 0 0 0 0 0 0			0 0 0 0 0 0 0 0 0 0 0 0	1.16	1.25			0 0 0	1.11
Ultimate.	Car- bon.							84.95 88.16	91.56			1 1 0	84.91
D	Hy- dro- gen.							4.86	4.53				28.82
	Sul-		0.50	.75	08.	855	5.65	225	28.8	888	888	888	525
	Ash.		2.6	4.70	24.2	4.4.	3.54	3.58	00 00 00 4	4.4.	20.00	5.4	4.10
nate.	Fixed curbon.		79.2	84.5 78.7 81.5	84.5	85.0 81.3	85.0 77.6 81.5	81.3 81.3	84.5 78.3 81.6	84.5	84.5	84.0 75.9 80.1	20.52
Proximate.	Vola- tile mat- ter.		14.5	15.5 14.5 15.0	15.5	14.0	15.0	15.0	15.5 14.5 15.0	15.0	15.0	14.0	15.00
	Mois- ture.		3.7	00.4	4.1	3.3	4.5	3.6	3.9	3.6	4.7	5.0	4.4
	Con- di- tion.		10	n – n	m-01	n 01	m=01	2-0	m → M	en −101	10 H CO	0 H 01	n → 01 o
Sample.	Kind.		<	4	4	4	V	:	4	V	٧	4	
ŭ	Lab- ora- tory No.		8555	8556	8557	8558	8559	229	8200	8561	8562	8563	8676
	Locality, bed, etc.	WEST VIRGINIA-Continued.	Simmons—Continued.  2 miles west of; Caswell-Elkhorn mine, Poenhontas No. 3 bed (left entry 6, 3,800 feet northwest of	drift mouth, 74-foot cut). Same (room 1 off right entry 4, 2,400 feet northwest of drift mouth, 64-foot cut).	Same (right entry 1, 1,400 feet north of drift mouth, 814-inch cut).	Same (border-line entry off right entry 3, 2,800 feet north of drift mouth, 7½-foot cut).	Same (pillar 12 on left entry 3, 2,400 feet west of drift mouth, 783-inch cut).	Same (composite of Nos. 8555-8558)	2 miles west of; Caswell-Hemlock mine, Pocahontas No. 3 bed (Charleston entry, 4,800 feet south	of drift mouth, 89-inch cut). Same (pillar, room 4 on straight entry, 5,600 feet south of drift mouth, 73-foot cut).	Same (pillar, room 18 on Deacon's entry, 7,000 feet southeast of drift mouth, 82-inch cut).	Same (pillar, room 8, cross entry 3, 6,700 feet south of drift mouth, 83-foot cut).	Sume (composite of Nos. 8561-8563)

1032	1032	1032	1032	1032	1032	1033	1033	1033	1033	1033	1034	1034	1034	1034	1034
T		:													
: :					14, 532	15,782				14, 598	15, 820 14, 195 14, 665 15, 705	14,245	14, 544	14, 421 14, 916 15, 754	14, 371 14, 873 15, 768
•					8,072	8,768				8,110	8,788 8,147 8,725	7,914 8,208	8, 351 25, 351	8, 286 2, 286 2, 286	7,984 8,263 8,760
2.7	2.1	53	2.5	13	2.4	2.4	03	3.0	2.9	2.9	12	3,1	25.	.52	2.9
					1.37	1.34				5.73	Z. 7.				5. 17 2. 25 2. 39
					1.00	1.05				1.07	1.16				1.15
					84.88	92.20				83.59	90.68		0 0 0 0 0 0 1 0 0 1 0 0	0 0 0	82.95 85.84 91.01
					4.75	4.77				4.90	4.88				4. 48
65.	882	¥8.88	32.25	92.88	6.5.9	25.55	25.53	76.55	5,52,53	28.25	25.50	58.5	22.22	3441	42.00
3.59	4.94	5.02	4.85	4.79	4.70	€. 50 €. 20 €. 20	4.00	4.56	4.81	4.15	6.41	5.91	4.53	5.32	5.49
	86.83	82.15 82.15	25.05	88.88	79.75	86.63 82.49 82.96	86.27 79.66 82.79	86.38 78.88 81.79	78.39 81.19	85.45 79.10 82.04	85.73 75.59 83.64	75.28	28.19 13.19 13.19	75.98	75.49 78.12 82.82
12.23	11.73	12.28	11.65	11.57	12.31	13.37 12.81 13.20	13.73 12.56 13.05	13.65	13.85	14. 55 13. 17 13. 66	14. 27 14. 79 15. 28 16. 36	15.23	16.57	15.92	15.65 16.20 17.18
3.54	3.26	3.1	3.48	3.45	3, 24	2.97	3.78	3.56	3.45	3.58	3.21	3.58	3.24	3.32	3.37
-63	0 H 01	200	0-010	0 110 110	2 H C3	m − 01	ಣ=ಣ	n − 010	0-01	8 H 87	co + co +co	616	20 m 03 c	2000	2-01:03
4	4	4	4	4		4	4	₹	4		₹	7	<	7.	<
8434	8435	8430	8437	8438	8473	8336	8333	8335	8334	8424	10423	10424	10425	10426	10438
Springton, 3 mile east of, Spring mine, Pocahontas	Same (Franklin entry, right entry 2 off left entry 2, 3, 400 feet from drift mouth, 531-inch	Same (main heading, 3,600 feet from drift mouth, 56f-linch cut).	Same (Tazewell entry, 3,600 feet from drift mouth, 624-inch cut).	Same (left heading 1; 3,600 feet from drift mouth, 53;-inch cut).	Same (composite of Nos. 8434-8438);	Wenonah (Dott post office), Wenonah mine, Pocahon- tas No. 3 bed (left entry 2. off main entry 2.	2,000 feet from drift mouth, 43g-inch cut). Same (left entry 2, off main entry 1, 39g-inch cut).	Same (left heading 4, off main entry 1, 44½-inch cut).	Same (main entry 1, 401-inch cut)	Same (composite of Nos. 8333-8336)	Widemouth, one-half mile west of, Picdmont mine, Pocahontas No. 4(?) bed (room 2, off right heading 10, 2,600 feet southwest of drift	mouth, 4s-ner cut). Same (left entry 8, off main entry 1, 3,600 feet southwest of drift mouth, 563-inch cut).	Same (left entry 2, off main entry 3, 900 feet north of drift mouth, 544-inch cut).	Same (main heading 2, 1,100 feet northeast of drift mouth, 49-inch cut).	Same (composite of Nos. 10423–10426)

Table of chemical analyses—Continued.

nce.	Page of this bulletin.		1035	1035	1035	1035	1035	1035	1035	1036	1036	1037	1037
Reference.	Bul- letin No. b			:		:			:	:	:	:	
value.	British thermal units.		3,960	4,442	15,730 13,731 14,342	0,000	3,812	13,832	5, 739	4, 130	4, 103	4,397	15, 791   14, 103   14, 378   15, 693
Calorific value.	Calo- th				7,628			7,684					8,773 7,835 7,988 8,718
0	Air-dry-ing Closs.		1919						20 : :			Δ	
	Oxy-	1				2.54	2. 79		1.67	1.13			
	Nitro-gen.					1.66	1.81		1.37	1.56			
Ultimate.	Car- Doon.					81.78	89.24		79.11	89.99		0 1 1 1 1 1 1 1 1 1 1 1	
[D	Hy- dro- gen.					4. 47			4. 15	1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		· · · ·
	Sul-		1.04	1122	25.25 25.25 	1.23	1.34	5.62	2.2.2. 33.3.3. 33.3.3.3.3.3.3.3.3.3.3.3.	88.00	1.15	777	1.06
	Ash.		8.33	6.24	7.30	7.24	11.39	11.01	11.34	9.90	9.21	6.80	8.38
nate.	Fixed carbon.		71.15	22.08	73. 27 73. 56 73. 56	73.64	20.37 72.55 73.50	72.25	81.30 72.66 73.20	82.65 . 72.91 . 73.57	81.74 73.87 74.48	76. 43 78. 01	83.83 . 73.72
Proximate.	Volatile matter.												16. 17 16. 15 16. 46 17. 97
	Mois-		2.82	1,98	4.26	1.13	1.29	1.11	.74	06	.82	2.03	1.91
	Con- di- tion.		-101	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;			ω <b>–</b> ιοιο	2 H 63					დ <u>⊣</u> 01 დ
Sample.	Kind.		Ą	¥	Ą	A	V	A	A	A	¥	A	₹
02	Lab- ora- tory No.		472	473	483	10458	484	485	10457	7626	7627	492	494
	Locality, bed, etc.	WEST VIRGINIA—Continued.	Elk Garden, Tyson No. 10 mine, Sewickley bed (pillar off room 4, off right heading, 160 feet north-	west of drift mouth, 61¼-inch cut). Same (No. 6 pillar, off main air course, 430 feet southeast of drift mouth, 62-inch cut).	Same (heading pillar, neck of room 8, right air course, 440 feet northwest of drift mouth,	osternon cut). Same (composite of Nos. 472, 473, and 483)	1 mile north of; C*t No. 20 mine, Upper Freeport seam (Baldwin heading, 50\frac{1}{2}-inch cut).	Same (Atlantic heading, 37-inch cut)	Same (composite of Nos. 484 and 485)	1 mile southwest of Elk Garden No.6 mine $^a$ (1,200 feet southeast, room 5, off heading 3, 9-foot	105-inch bed, 9-foot 10-inch cut). Same (700 feet south, room 2, off right heading 2, 10-foot 53-inch bed, 10-foot 4;-inch cut).	Oakmont, 1½ miles northwest of; Kittanning No. 14 mine. Upper Freeport bed. room 6. off line	heading on dip 2 (423-inch cut). Same (right heading 2, oif Harrison, off main heading, 403-inch cut).

1037	1038	1039	1040	1040	1041
	290 530 530 530 530 530 530 530 530 530 53	261 261 261 261 261 261 261	84	87	8
14, 112 14, 399 15, 745 14, 235 14, 235 15, 688	13,957 14,360 15,390 16,105 14,105 16,521 15,448 15,532	13,911 13,871 13,876 13,876 15,488 15,488		* . * * * * * * * * * * * * * * * * * *	
7,840 7,999 8,747 7,068 8,048 8,716	7,754 8,550 8,550 7,836 8,067 8,629 8,629	7,775 8,711 7,532 7,709 8,610 8,610	0 0 0		
	1.5	& 11 H	<b>c</b>	9.	1.0
9119 8843 843	6.77	7.17 5.26 5.93			
1.39 1.40 1.52 1.41 1.41 1.65	1.43 1.57 1.58	2.1.1.1.2.3.4.1.1.2.2.2.4.1.1.2.2.2.2.2.2.2.2.2.2.2	0 0 0		
82.08 83.09 83.09 84.05 82.54 82.54	78.38 80.69 85.84 86.48	75. 13 85. 88 86. 94	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	5.14	44.95 6.44.95 6.49			
2.4.2.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	366779688	8.8 9.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	.85 .85	1.05	84.884
8. 38 8. 55 8. 55 7. 56 7. 56 7. 56 7. 58	6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5	8. 32 8. 51 8. 51 9. 5. 19 10. 23 10. 47	17.50	8.62	10.62
25.25.25.25.25.25.25.25.25.25.25.25.25.2	65.55 65.55 65.55 65.75	60.03 61.38 67.09 67.09 67.07 67.08 57.62 65.97	49.02 50.16 61.10	55.64 56.93 62.30	54.87 61.39 52.51 61.65
15. 16.525 16.525 17.725 17.54	36. 33. 4. 25. 25. 25. 25. 25. 25. 25. 25. 25. 25	8188888888 4122888888	31. 20 31. 93 38. 90	33.67 31.45 37.70	31.51 31.93 32.68 38.35
1.99	2.81	2 29 21 29 29 29 29 29 29 29 29 29 29 29 29 29	82.28	2.27	2.29
	-000-000-004	-00-00-004	-01m	co co	(C)
< < < <	c v >	<b>4 4 9</b>	Ħ	g 2	п
10453 495 10431	2349	1109	1233	1236	1362
Same (composite of Nos. 492 and 494)  Wabash, Wabash No. 9 mine, Georges Creek or Pittsburgh bed (pillar, opening 12, room 2, 1312-inch cut).  Same (opening 9 to right of main air course, 1202-inch cut).  Same (composite of 493 and 495)	Glen Alum, Glen Alum mine, War Eagle bed (crossout 900 feet from drift mouth, 63\text{-inch} cut).  Same (3,000 feet from drift mouth, room 19, off entry 20, 74\text{-inch} cut).  Same (run of mine)	Morgantown, 4 miles southeast of: Richard mine, Upper Preport bed (right entry 4, oif main, 33-foot entr).  Same (airway near left entry 4, 502-inch cut)  Same (run of mine)	Delphi, 3 miles northwest of; near head of Righthand Feyr of Muddley Creek, country bank of Packer, Harrison & O'Connor, Watsville (137-inch) bed (middle and bottom benches, 5-foot can)	Same (upper bench, 67-inch cut)	Twentymile Creek, country bank, Watts- tille (573-inch) bed, lower bench, 47-inch cut. Hookerstille, east of, flutchinson country bank near Wood's field, Wattsville, 994-inch bed.

a Big Vein (Georges Creek or Pittsburgh) bed.

Table of chemical analyses-Continued.

ence.	Page of this bulletin.	5	1041	1042	1042	1042	1043	1043		1043	1043
Reference.	Bul- letin No.		48	84	80	18	48	290 113 336	261	290	290
Calorific value.	British thermal units.		1		* * * * * * * * * * * * * * * * * * *		* 2 * * * * * * * * * * * * * * * * * *	13, 999 14, 323 15, 554	14,069 14,279 15,610	15,725 14,218 14,744	10, 409
Calorif	Calo- ries.		1 0					7,777 7,957 8,641	7,816 7,933 8,672	8,736 8,191	8, 730
	Air- dry- ing loss.	,	1.4	5.0	2.3	oc :	 	1 2 2	10	2.4	2.3
,	Oxy- gen.	_		1 0 0				0 0 0 0 0 1 0 0 0 1 0 0 0 1 0 0	6.52 5.28 5.78	5.81	
	Nitro-gen.							1.30	1.48 1.50 1.64	1.66	
Ultimate.	Car-								77.82	87.20	
. 1	Hy- dro- gen.								4.89 5.25	5.30	
	Sul-		0.52	22.1.29	722	1.27	.71		9.1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	88	20000
	Ash.		5.22	7.87	4.62	9.24	6.26	7.74 7.92 8.58	8.39	6.21	5.37
nate.	Fixed carbon.		59, 49	64.31 56.59 60.79	66.40 62.25 65.58	57.52	63. 61 68. 12 68. 12	61.29 62.71 68.11 60.63	62.03 62.03 62.47 68.29	62.84 65.17	62.70 64.95 68.64
Proximate.	Vola- tile mat- ter.		33.83	38.59 30.76	33.60 31.62 32.77 34.42	30.93	28.15 29.77 31.88	28.71 29.37 31.89 28.53	29. 19 32. 00 28. 58 29. 01 31. 71	27.38	28. 65 29. 68 31. 36
	Mois- ture.		2,40	6.90	3.51	2.31	5.44	2.26	1.48	3.57	3.47
	Con- di- tion.		-01:	ro → cq	m = 01 m	House	m <b>−1</b> 01 m		NO-00	4-01	200
Sample.	Kind.		a	Я	m	В	B	< <	Ö	<	4
20	Lab- ora- tory No.		1581	1579	1582	1578	1583	1116	1262	2054	2055
	Locality, bed, etc.	WEST VIRGINIA—Continued. NICHOLAS COUNTY—continued.	Summersville, near; McRader country bank, No. 2 Gas bed, 35-inch section, lower bench, 23-inch	Three-fourths mile from; country bank on J. E. Sims farm, No. 2 Gas (50-inch) bed, lower	West of; 33-med cut. West of; on Fitzwater Branch of Peters Creek, country bank on C. H. Dunbar farm, No. 2 Gas (402-inch) bed, Jower bench, 26-inch cut.	1 mile south of; country bank on Backus farm, 513-inch bed, stock-pile sample, No. 2 Gas bed.	1 mile west of, head of McKee Creek, stripping on Neff farm, 60½-inch bed, 55-inch cut, No. 2 Gas bed.	Pretz, Bretz mine, Upper Freeport bed (right room 1, off main entry, 963-inch section, 373-inch cut).  Same (left room 1, off main entry, 983-inch sec-	ton, 36-inch cut). Same (run of minc, 25 tons)	Same (1,300 feet from drift mouth, left heading 2, off main entry, 513-inch bed, 494-inch cut).	Same (800 feet southwest of drift mouth, right entry 3, off main entry, 41-inch bed, 39-inch cut).

		22.	.,,,,,,,	224	, 01	00.	LLO			0 21		K-3L-		,		200
	1045	1045			1045	1045	1045	1045	1045	1045	1046	1046	1046	1046	1046	1046
290	290 336 48	290	290													
13,370 13,914 15,552	15, 696 13, 995 14, 461 15, 646		13,869 14,366 15,685	15,876				14,650	14,470	15,740 14,582 15,314	15,719	* * * * * * * * * * * * * * * * * * *		14,680	15,780	
7,428	8,720 7,775 8,034 8,692	0 B 0 D 0 C 0 C	7,705 7,981 8,714	8,820				8, 520	8,8,8,0 36,040	8,740	8,733		• • • • • • • • • • • • • • • • • • •	8, 155	8,765	
2.6	2.3	3.1	2.5	:	2.8	2.8	7.1	3.7	3.1	4.2	2.8	2.8	2.2	2.6	4.5	7.3
7.84	5.14	0 0	7.40	4.97					0 0 0 0 0 0 0 0 0 0 0 0	6.94	, i. 88			4.94	2.13	
1.56	1.84		1.37	1.57						1.51				1.55	1.66	
74.73			76.98 79.74 87.06							83.42				83.67		
4.69		0 0 0 0 0 0 0 0 0	4.68	4.04						5.04	4.8/			5.03		
1.11	1.73	1.21	1.565.	:	72	65.05	2525	4.8.8	888	32.2	25.28	888	322	1.15	2.8.8.8	202.02
10.11	7.33	5.60	8.12		2.41	2.61	2.35	22.2	2 4	2.45	4.4.	2.4	0 00 0 00	3.66	2.43	3.07
59.30 61.71 68.96	59.91 61.91 66.99	64.25	61. 13 63. 32 69. 13		77.53	76.76	73.50	75.6 79.5	76.1	80.03	74.7	80.6	77.3	785.0	81.03	80.02 82.58
26.68 27.77 31.04	29.54 30.52 33.01		27.29 28.27 30.87		16.77	17.31	16.58	18.0	19.5	16.57	17.5	15.5	16.5	17.0	18.5 15.72 16.54	15.56 16.88 17.42
3.91	3.22	4.05	3.46		3.29	3.32	7.47	4.5	3.9	4.79	3.7	3.7	3.1	3.3	4.97	7.83
-000	4-010	-010	2-100	4	-01	2000	21010	n → 01 0	0-010	2-01	2000	2-1010	2-010	2 to the C3 to	n – 010	0-00
D	4	<	Ö		<	4	<	4	4		4	4	<		4	4
2250	2056	2057	2332		8015	8016	8017	6688	0068	8104	8261	8260	8259	8310	8014	8043
Same (run of mine)	2½ miles above; Bakerstown bed, prospect hole about 4 mile below country bank from which car sample was shipped (200 feet in, main basing to the state of the sta	Same (offset 1, right of main entry, 175 feet from opening, 43-inch cut).	Same (car sample from country bank)	RALEIGH COUNTY.	Beckley, \$ mile from; Sprague mine, Sewell bed (main entry, \$,000 feet from drift mouth, 52\$-inch	Same (left entry 3, 3,000 feet from drift mouth, 46k-inch cut).	Same (right entry 4, 2,500 feet from drift mouth, 50-inch cut).	Same (left entry 5, 4,000 feet from drift mouth, 41-foot cut).	Same (left entry 2, 2,500 feet from drift mouth, 4-foot cut).	Same (composite of Nos. 8015-8017)	mile west of, Raleigh No. 5 mine, Sewell bed (left entry 4, 1,800 feet from drift mouth, 34-	Same (right entry 4, 1,800 feet from drift mouth, 391-inch cut).	Same (left entry 3, 1,400 feet from drift mouth, 32-foot cut).	Same (composite of Nos. 8259-8261)	1½ miles from; Beckley mine, Sewell bed (main entry, 4,600 feet south of slope, 55½-inch cut).	Same (north entry 3 off dip entry, 3,500 feet west of slope, 424-inch cut).

Table of chemical analyses—Continued.

Fixed Ash. Sul- Hy- Car- Nitro- bon. gen. gen. gen.	Ash. Sul- Hy- Car- dro- bon.	Fixed Ash. Sul- dro- bon. bon.	di- tion Mots tile ear- tion mat- tion Bul- tion Bul- tion Bul- tion bun. En Bul- tion bun.	Mofs- tile car- Ash. Sul- dro- bon.	Con- Mols- tile car- Ash. Sul- Hy- Car- tion. ture. ter. bon.
	The same of the sa		ter. Don.	ner.	
3.92 0	76.15 3.92 0 79.28 4.08	76.15 3.92 0 79.28 4.08	3.95 15.98 76.15 3.92 0 16.64 79.28 4.08	3.95 15.98 76.15 3.92 0 16.64 79.28 4.08	8044 A 1 3.95 15.98 76.15 3.92 0 2 16.64 79.28 4.08
2.47	82. 65 78. 56 2. 47 29. 29 9. 50	17.35 82.65 2.47 14.40 78.56 2.47	4.57 14.40 78.56 2.47	4.57 14.40 78.56 2.47	8045 A 1 4.57 14.40 78.86 2.47
2.99 78 5.09 82.28 1.37	15.20 76.88 2.99 778 5.09 82.28 1.37	84.51 72 76.88 2.99 778 5.09 82.28 1.37	15.49 84.51 7.72 7.8 5.09 82.28 1.37	15.49 84.51 7.72 7.8 5.09 82.28 1.37	8106 1 4.93 15.20 76.88 2.99 78 5.09 82.28 1.37
3.15	15.99 80.86 3.15 .82 4.78 86.55 1.44 16.51 83.4985 4.94 89.36 1.49	15.99 80.86 3.15 .82 4.78 86.55 1.44 16.51 83.49	16.59 80.86 3.15 .82 4.78 86.55 1.44 16.51 83.49 85 4.94 89.36 1.49	3 4.94 80.86 3.15 .82 4.78 86.55 1.44 3 7.0 16.51 83.49 75 4.94 89.36 1.49	2
2.65	81.46 2.65 83.68	15.89 81.46 2.65 16.32 83.68	15.89 81.46 2.65 16.32 83.68	2 15.89 81.46 2.65 3 16.32 83.68	2 10.15 10.32 10.30 10.3
2,50	80.04 2.50 .72 82.28 2.57 .74	14.74 80.04 2.50 .72 2.15.15 82.28 2.57 .74	2.72 14.74 80.04 2.50 .72 2.25 15.15 82.28 2.57 .74	1 2.72 14.74 80.04 2.50 .72 2.22 2.87 .74	8012 A 1 2.72 14.74 80.04 2.50 .72 2.25 2.28 2.87 .74
3.15	84.45	84.45	3.71 14.08 79.06 3.15 70 14.08 79.06 3.15 70	3.71 14.08 79.06 3.15 70 14.08 79.06 3.15 70	8046 A 1 3.71 14.08 79.06 3.15 .67
3.27	84.89	15.11 84.89 15.5 74.1 4.1	6.3 15.5 74.1 4.1 1	3 15.11 84.89	8895 A 1 6.3 15.5 74.1 4.1 1
1.4.4	84.89 74.1 4.1 1 79.1 4.4 1	84.89 74.1 4.1 1 79.1 4.4 1	6.3 15.5 74.1 4.1 1 16.5 79.1 4.4 1	6.3 15.5 74.1 4.1 1 16.5 79.1 4.4 1	8895 A 1 6.3 15.5 74.1 4.1 1 2 16.5 79.1 4.4 1
144	74.1 4.1 1 79.1 4.4 1 83.0 1	15.5 74.1 4.1 1 16.5 79.1 4.4 1 17.0 83.0 1	6.3 15.11 84.89 4.11 16.6	2 16.3 19.11 84.89 44.1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8895 A 1 6.3 15.11 84.89 4.11 1 6.3 16.5 74.1 4.1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3.27	82.11 3.27 84.89 74.1 179.1 4.4 1 183.0	15. 11 84.89 15. 11 84.89 15.5 74.1 4.1 16.5 79.1 4.4 17.0 88.0	6.3 15.11 84.89 15.11 84.89 16.5 74.1 4.1 1 17.0 88.0 1.44	2	8895 A 1 6.3 15.5 74.1 4.1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
o de la	15.98 15.98 17.59 17.59 17.59 18.98 18	15.98 15.98 17.59 17.59 17.59 18.98 18	115	1 3 95 15 98 16 98 2 15 98 16 98 18 18 18 18 18 18 18 18 18 18 18 18 18	8044 A 1 3.95 15.98 75.15 3.92 0. 8045 A 1 3.95 15.98 75.15 8.20 75.15 8.20 10. 8045 A 1 4.57 15.99 82.35 2.50 8011 A 13.18 15.59 87.88 2.57 88.04 A 1 3.18 15.89 87.88 2.57 88.04 A 1 3.18 15.59 87.88 2.57 88.05 A 1 3.71 14.08 79.06 3.15 88.05 A 1 3.71 14.08 79.06 3.15 87.00 8.20 8.20 8.20 8.20 8.20 8.20 8.20 8
	5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	11.55	3.95 15.88 76.15 16.59 80.94 15.88 18.86 1.50 88.86 15.88 18.86 18.88 18.86 18.88	3.96 3.96 4.77 4.73	8044 A 1 3.95 15.98 76.15 8045 A 2 15.98 76.15 8106
			3 95 77 72 8 18 8 77 1 6 3 77 1	6 4 8 8 2 2 1 2 8 8 2 1 1 8 8 8 1 1 1 1 1 1	8044 A 1 3.95 8045 A 1 4.57 8106 1 4.57 8011 A 1 3.18 8012 A 1 2.72 8046 A 1 3.71 8895 A 1 6.3

1048	1048	1048	1048	1049	1049	1049	1049	1050	1050	1050	1050	1050	1050	1050	1051	1051
																•
	14,240	14,370	15,764	779,61			14,369	15,754			14,544	15, 766		14,340	15,780	
	7,910	8,275	8,202	8, 790			7,983	8, 752			8,080	8, 759		7,965	8, 765	
3.5	6.4	2.6	3.6	3.7	6.7	2.5	4.3	2.8	జ <del>,</del>	4.0	3.5	2.6	5.6	4.	2.8	2.7
			6.69	2.97			7.25				6.40			6.26		
			1.547				1.54				1.44	1.56		1.49		
			84.08	90.11			86.01	89.52			82.93	 68 68		82.31 86.36	90.58	
			. 4. 4. 98	7.07			4.99	4.86			5.05	4.96		4.71	4.61	
.47	8:35:	:88	86.23	1.16	25.55	1.01		9.8.2.2 	328	82.28	25.5	355	68.83	38.8	<u> </u>	1282
1.82	22.6	5.0	2.29	4.42	4.83	2.41	3,72	2.74	3.68	4.38	3. 57		5.3	4.4	3.07	3.44
79. 20   82. 67	74.27	20.25	22.0 77.16 80.71	74.85 78.49 5.49	72.66	77.59	74.37	81.54 79.81 82.88	77.51	81.20 2.20 3.20 3.20	84.92 78.02 81.43	84.59 78.1 80.7	20.75.0	81.9 81.9	76.36	81.78 76.44 79.27 82.21
14.78	17.5	16.5	16.15	16.30	15.59	17.01	16.98 16.84 17.74	18. 46 13. 74 14. 27	14.94	13.73	15.08 14.84	15.41	14.0	13.0	14.5 17.01 17.66	18. 22 16. 55 17. 16 17. 79
4.20	7.2		4.40	4.64	7.27	2.99	5.07	3.71	4.55	4.77	4.19	3.2	6.2	4.7	3.67	3.57
	2400	0 0 0		2 – 61			2000	m – 0 0			2000	m=00	2000	210		
٧	4	4		<	<	4		4	₹	¥		4	4	<	₹	4
8039	8897	8888	8114	8008	8008	8010	8109	8280	8279	8281	8314	8901	8902	8638	8086	8087
Same (right entry 4, 2,500 feet southeast of shaft, 532-inch cut).	Same (right air course 3, 200 feet southeast of shaft, 55½-inch cut).	Same (room 5 off left air course 2, 1,500 feet northeast of shaft, 33-foot cut).	Same (composite of Nos. 8037-8039)	One-half mile from; Prosperity mine, Sewell bed dip entry, 1,000 feet from shaft, 494-inch cut).	Same (main north entry, 2,000 feet from shaft, 501-inch cut).	Same (main rise entry, 1,500 feet from shaft, 422-inch cut).	Same (composite of Nos. 8008–8010)	Eccles, Eccles No. 1 mine, Sewell bed (main north entry, 431 feet from shaft, 543-inch cut).	Same (room 1 on southeast entry, 210 feet from shaft, 53\s^2-inch cut).	Same (main south entry, 524-inch cut)	Same (composite of Nos. 8279-8281)	Glen White, Glen White mine, Beckley bed (250 feet from shaft 1, entry 1, 107-inch cut).	Same (main air course, 400 feet east of shaft 2, 8 foot 10‡ inch cut).	Same (composite of Nos. 8901 and 8902)	Graham, Graham mine, Sewell bed (left air course 5, 3,600 feet S. 25° W. of drift mouth, 53\frac{1}{2}-inch	Cut). Same (room 32 on left entry 2, 2,900 feet south of drift mouth, 48½-inch cut).

Table of chemical analyses-Continued.

ence.	Page of this builter tin.		1051	1021	1052	1052	1052	1052	1053	1053	1053	1053	1053
Reference.	Bul- letin No.		:						:	:			
Calorific value.	Pritish thermal units.		: :	14,657	15,658			14,924	15, 780		14,873	15, 853	
Calorifi	Calo-	1		8,143	8, 699			8, 291	8,770		8, 203	8,807	
	Air-dry-ing loss.		£ .	2.6	1.9	c;	1.7	2.0	2.2	1.9	2.1	2.3	2.6
	Oxy-gen.			3.06	3.15			25.40	2.97		5, 40	2.78	
	Nitro- gen.			1.46	1.56			1.65	I. 09		1.31	1.39	
Ultimate.	Car- bon.			86.63	89. 51			84.92	89. 82		84. 48	90.04	
2	Hy- dro- gen.			4.97	4.93			86.4	4. 93		5.11	5.07	
	Sul-		0.85	282	88.29	55.50	223	35.55	38.	2223	485	.54	S 4 4 5
	Ash.		3.02	3, 10	2.13	2.56	2, 40	2, 55	2.87	2.99 3.08	3.12	3.01	1.95
nate.	Fixed carbon.		75.60	78.62	80.77 78.17 80.58	76. 39	77. 49 79. 73	81.75 78.06 80.39	77.07	81. 99 77. 21 79. 51	77. 12	82. 19 76. 91 79. 30	81. 84 78. 39 81. 12 82. 79
Proximate.	Vola- tile mat- ter.		18.11	18.00	16.75 27.75 27.75	17. 61 17. 24 17. 85	18.34 17.30 17.80	16.45 16.45 16.48	16.93 17.48	18.01 16.91 12.4.92	16.71	17.81 17.07 17.60	15. 16 16. 29 17. 21
	Mois- ture.		3. 27	3.28	3.00	3. 43	2.81	2.90	3.13	2.89	3.15	3.01	3.37
	Con- di- tion.		-010	2000	m → 01	00 H 03	e - 01	o c₁	200	m-01	10 m cs	ಣ್ಣಣ	m = 01 m
Sample.	Kind.		4		<	4	<		٧	4	:	V	4
, vi	Lab- ora- tory No.		8088	8165	8129	S130	8131	8184	8357	8356	8422	8305	8303
	Locality, bed, etc.	WEST VIRGINIA—Continued. RALEIGH COUNTY—continued.	Graham, Graham mine—Continued. Same (room 2 on air course of Sidney entry, 200 Jeet N. 45° W. of drift mouth, 455-inch	Cut). Same (composite of Nos. 8086-8088)	1 mile from; Tannoy mine, Sewell bed (main entry 1, 1,200 feet S. 83° E. of drift mouth,	58g-mot cut). Samo (west citry 2, 500 feet S. 26° W. of opening, 533g-mot cut).	Same (main air course 3, 750 feet S. 8° E. of drift mouth, 522-inch cut).	Same (composite of Nos. 8129-8131)	Lanark, 1 mile west of; Lanark No. 3 mine, Sewell bed (pillar, right entry 3, 1,700 feet northeast of	drift mouth, 563-inch cut). Same (pillar, right entry 2, 1,500 feet east of drift mouth, 603-inch cut).	Same (composite of Nos. 8356 and 8357)	Lanark No. 4 mine, Sewell hed (pillar, right entry 3, 1,500 feet southeast of drift mouth,	Same (cross cut, main entry 2,500 feet west of arift mouth, 531-inch cut).

1053	1053	1054	1054	1054	1054	1054	1054	1055	1055	1055	1055	1055	1055	1055	1055	1055
						:	:	:	:		:	:	:	:		
	14,796	15, 815				14,386	15,710 14,576 15,016	15, 707 14, 432 15, 007	15,750 14,918 15,431	15, 779	14,550	14,870	14,566	15,712		
	8,220					7,992	8,728 8,342	8, 726 8, 018 8, 337	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8, 766	8,085		8,092	8,729		
4. S	3.2	2.1	2.4	2.0	2.4	2.6	2.2	3.1	2.6	2.1	8. 4.	2.6	2.6	63	2.7	2.9
	3.57						5.15						2.547			
	1.49						1.52						1.59			
	83.50 86.93						82. 75 85. 30						82.41			
	5.13						4.99						5.02	5.01		
. 52	20.00	27.75	588	9125	26.65	22.23	1.32	1.32	1.44	2.09.00	1.40	38.88	1.58	122	55.55	85.75
2.64	2. 49	2.68	4.21	5.64	4. 42	5.03		4.54	2.13	4.93	3.5	2.5	3.93	4.4	44	4.5
76.62	25.55 27.55 27.55 27.55 37.55	78.50	74.32	72.24	38.85	73. 49	80. 25 74. 60 76. 90	78.78 78.78 76.69	20. 25 79. 27 20. 27	72.22	74.3	80.20	74.78	78.50	8.7.88 0 8.27	76.7 79.8 84.0
15.13	16.69	17.94	18.30	19.14	16.29	18.09	19.75 18.14 18.70	19.56 17.58 18.59	19.51	20.02 20.03 20.03 20.03	18.0	17.0	17.92 18.55	16.0	15.0	15.0 16.0
5.61	3.95	2.96	3.31	2.68	3.21	3.39	2.99	3.83	3. 33	2.84	2.4	3.4	3.37	4.1	% 3	တ
-24		\$ H €1	2-21		2-01	2010	ю <del>г</del> о	m – 01	m = 01	2000	o → 010	0-0:	o ⊢ 010	20 m 63 c	200	0 - 01 00
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8304	8316	8081	8082	8083	8245	8691	8162	7931	7932	8127	8689	8690	8188	8264	8265	8263
Same (room 18 off right entry 5, 2,400 feet from drift mouth, 55-neh cut).	Same (composite of Nos. 8303-8305)	Oswald, Oswald mine, Sewell bed (right air course 7 off new main, 2,500 feet S. 60° E. of drift mouth,	same (roun 8, left entry 7, 2,500 feet N. 80° E. of drift mouth, 44-foot cut).	Same (room 10 on left entry 4, 1,700 feet N. 30° E. of drift mouth, 3½-foot cut).	Same (room 4 on left entry 9 off new main, 3,300 feet east of drift mouth, 53-inch cut).	Same (room 12 on left entry 4, 473-inch cut)	Same (composite of Nos. 8081-8083 and 8245)	Price Hill, 2 miles southwest of MacDonald; Price Hill mine, Sewell bed (main-entry, 2,600 feet	southwest of shaft, 48‡-nech cut). Same (room 8, right entry 8, 1,200 feet N. 45* W. of shaft, 43‡-inch cut).	Same (room 19, of left entry 2, 2,300 feet south of shaft, 53-inch cut).	Same (room 19, off left air course 2, 2,500 feet south of shaft, 44}-inch cut).	Same (left entry 4, 3,000 feet from shaft, 441-inch cut).	Same (composite of Nos. 7931, 7932, and 8127)	Raleigh, Raleigh No. 6 mine, Beckley bed (west entry 1, 1,400 feet from drift mouth, 62-inch cut).	Same (main south entry 1, 2,100 feet from drift mouth, 512-inch cut).	Same (left entry 4, 1,800 feet from drift mouth, 484-inch cut).

Table of chemical analyses—Continued.

ence.	Page of this bulle-tin.	1	1055	1055	1056	1056	1056	1056	1056	1056	1057	1057	1057
Reference.	Bul- letin No.				:				:	:	:		
Calorific value.	British thermal units.			14, 460	15, 380		14,854	15,813		14,740	15,780		
Calorifi	Calo-	,		8, 335	8, 765		8,252	8,785		8, 190 8, 460	8,765		
	Air-dry-ing loss.	1	2.9	2.9	2.4	2.0	2.2	2.9	1.9	2.4	6.4	3,3	2.2
	Oxy-gen.			5.71			5.13	2.69		6. 33 3. 63	3.76		
	Nitro-gen.			1.41	1.54		1.52	1.62		1.49	1.60		
Ultimate.	Car- bon.			82.35	89.88		84.76	90.24		83.36 86.09	89. 22		
	Hy- dro- gen.			4. 99	5.01		4. 83	4.79		4.69	4.64		
	Sul- phur.	!	0.95	1.05	.57	288	652	75	855	73	.55	25.28	.59
	Ash.		5.8 6.0	4.93	3.04	3, 16	3.23	3.0	00 cm	3.40	2.97	4.14	3.78
nate.	Fixed carbon.		75.5	83.5 76.1 79.1	83.5 78.99 81.65	84.30 79.22 81.54	84.28 79.42 81.82	84.55 79.3 82.4	85.0 78.9 81.1	84.5 79.4 82.0	85.0 75.84 79.96	82.54 77.04 80.44	86.85 84.10 84.10
Proximate.	Vola- tile mat- ter.		15.0	16.5 15.5 16.0	16.5 14.72 15.21	15.70 14.78 15.21	15.72 14.51 14.95	15.45 14.0 14.5	15.0 14.5 15.0	15.5 14.0 14.5	15.0 16.04 16.91	17.46 14.60 15.24	15.93 15.28 15.98
	Mois- ture.	***************************************	3.7	3.6	3.25	2.84	2, 93	3.7	2.8	3.2	5.15	4.22	3.06
	Con- di- tion.		18	rs cs	0-01	20 11 23	8-0	en − en	20 - 62	8-8	e − e1	n – n	m – a m
Sample.	Kind.		¥		4	∢.	:	4	V		4	<	⋖
Ø	Lab- ora- tory No.		8266	8309	8252	8253	8306	8254	8255	8307	8257	8258	8256
	Locality, bed, etc.	WEST VIRGINIA—Continued. RALEIGH COUNTY—continued.	Raleigh, Raleigh No. 6 mine—Continued. Same (south entry 4, 59½-inch cut)	Same (composite of Nos. 8263–8266)	Raleigh No. 1 mine, Beckley bed (right haulway 4, 55-inch cut).	Same (room 1, on right entry 7, 58-inch cut)	Same (composite of Nos. 8252 and 8253)	Raleigh No. 2 mine, Beckley bed (pillar, right entry 2, 62-inch cut).	Same (room 18, right entry 1, 47-inch cut)	Same (composite of Nos. 8254 and 8255)	Raleigh No. 3 mine, Beekley bed (right entry 14, 5,000 feet from drift mouth, 46-inch cut).	Same (left entry 7, 4,200 feet from drift mouth, 64-inch cut).	Same (new right entry 6, 1,800 feet from drift mouth, 53-inch cut).

			23.24		J.J.	01	0022	DO 1.	.,	111						
1057	1058	1058	1058	1058	1058	1058	1058	1058	1058	1058	1058	1058	1060	1060	1061	1061
					:					:	:				385	362
14,570	15,810			14,449	15,757	14,450	15,790 14,630 15,080	15,880			14,765	15,766 14,040 14,670	14, 490	15, 520	14,857 15,190	15, 791 14, 834 15, 179 15, 750
8,095	8,785			8,027	8,754		8,770 8,130 8,375				8, 203				8, 254	8,241 8,241 8,433 8,750
3.3	2.0	e0 :00	69	23.00	C) C)	1.9	2.1	oci ci	1.7	1.8	2.1	23.	5.7	c;	1.5	1.7
2.96				25.36			2,52,52,52,53,53				2.34			15.57 15.57		
1.51	1.64			1.39			1.27				1.30		1.46	1111	1.68	
83.08				82. 67 85. 70			83.40 85.40 94.40				85.00		82.94	8.8.8. 8.8.8.8.	90. 56	
5, 13				4.89			6.4.4.				4.84	4.84		4.62		
79.	5.83	8,8,8,8	1.0952	28.8	388	.555	19:	25.52	36.8	35.25	2.4.8	25.55 8.55 8.55 8.55 8.55 8.55 8.55 8.55	5.83	2002	22.2	×25.28
3.65	5.05	4.90	4.65	4.94		5.76	5.03	3.01	5.02	2.83	3,54	8.8	5.14	4.47	3.73	3.54
80.7	25.55 0.55 0.55 0.55 0.55 0.55 0.55 0.55	18.83 18.83 18.83	\$6.13 \$6.13 \$6.13 \$6.13	80.35	25.25 25.75	8.55.05 6.05.05	85.5 78.5 5.5 5.5	85.5 79.65 82.41	84.97 78.13	82.34	84.74 79.88 82.19	85.29	80.20	20.02	76.99	81.84 79.18 82.15
14.5	6. 15. 15. 15.	3445 8448	32.8	3.4.4.5 3.8.8.8 3.8.8.8	5.4.5. 5.0.0.	13.0	455 000 000	14.09	14, 38	15.54	15.26 13.77 14.17	14.71	0.44	14.55 25.05 20.05	14.5 17.09 17.47	18.16 16.81 17.20 17.85
- <del>-</del>	2.80	4.07	3.96	3.53	3.0	2.7	3.0	3.35	2, 47	2.48	2.81	4.3	3.3	3.0	2.19	86
- 01	n – 01:	n → 01 :	2-01:	n → 01	rs — c1:	m – c₁	co <del></del> 04	es → eq :	∞ — °	100-01	n — 01	ಣಈರಾಣ	2-01	n – n:	0 m 03	m-01m
-	<	<	<		<	<	:	<	V	<	:	4	4	<	V	4
8308	8274	8272	8273	8312	8371	8372	8459	8337	8338	8339	8460	8373	9068	8907	5502	2203
Same (composite of Nos. 8256-8258)	One mile from; Blue Jay mine, Beckley bed (right entry 1, 500 feet from drift mouth, 524-inch	Same (main entry, 600 feet from drift mouth, 572-inch cut).	Same (main entry, 600 feet southeast from drift mouth, 574-inch eut).	Same (composite of Nos. 8272-8274)	Slab Fork, Slab Fork No. 1 mine, Beckley bed (main aircourse, 1,800 feet northwest of drift mouth,	Same (room 4, 500 feet west of drift mouth, 58-inch cut).	Same (composite of Nos. 8371 and 8372)	Slab Fork No. 2 mine, Beckley bed (right entry 1, 48}-inch cut).	Same (left entry 2, 63\strineh cut)	Same (main entry, 1,400 feet from drift mouth, 49f-inch cut).	Same (composite of Nos. 8337-8339)	Slab Fork No. 3 mine, Beckley bed (main entry, 600 feet east of drift mouth, 51-inch cut).	Sophia, Wood mine, Beckley bed, main entry 96 feet from drift mouth, 585-inch eut.	1 mile from: Compressor mine, Beckley bed, main outry 200 feet from drift mouth, 621-inch cut.	Stansford, Piney No. 1 mine, No. 6 drift, Beckley bed (2,700 feet southwest of drift mouth, left en-	try 2, 773-inch section, 65-inch cut), Same (2,700 feet west of drift mouth, right entry 2, 643-inch section, 533-inch cut).

Table of chemical analyses-Continued.

Reference.	Page of this bulle-tin.	'		0 0 0	1062	1062	1062	1062	1062	1062	1063	1063	1063
Refer	Bul- letin No.		362	362								:	
Caloride value.	British thermal units.		14,024	14, 330 15, 802 14, 044	15, 788			14,310	15, 280	14, 380 14, 790	15,080		14,818 15,383 15,759
Calorid	Calo-		7, 791	7,961 7,802 9,779	8,771			7,950	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8,759	8,710		8, 232 8, 546 8, 755
	Air-dry-ing loss.		1.4	1.9	2.9	2,2	2.8	2.6	2. 7	1.9	2.5	2.2	2.9
	Oxy- gen.		3.93	2.31 4.72 7.72	88 : :				6.05				22.73
di di	Nitro-		1.41	46.55	1.51			1.45	1.52	1. 59			1.54
Ultimate	Car- bon.		79.60	89.70 79.85	89.76			81.04 83.80	85.23	89.45			84. 60 87. 83 89. 97
	Hy- dro- gen.		4.74	4.0.4. 4.0.4.	4.98			4.91	6.0.4. 8.0.8.	5.04			6.15 4.92 5.04
	Sul-		1.20	1.23	95 1.35 1.40	1.50	1.00	1111	1.19	11.13	25.2	.63	S 22 72 72
	Ash.		9.12	9.32	0.01 0.00 0.00	7.4	5.2	5.96	4.16	5.7	5. 18	3. 48	2.29
mate.	Fixed carboon.		71.91	73.48 81.03 72.87	74.7 77.7	82.5 72.1 74.4	80.5 74.9	74.7	75.52	73.33. 25.00 20.00	75. 28 78. 31	82. 77 78. 44 80. 93	83. 85 78. 93 81. 94 83. 94
Proximate.	Vola- tile mat- ter.		16.83	17. 20 18. 97 16. 08	18.07 16.0 16.5	17.5 17.5 18.0	19.5 16.5 17.0	18.0 16.0	17.5	18.58.5 18.00 10.00	15.67 16.30	17. 23 15. 11 15. 59	16, 15 15, 10 16, 08
	Mois- ture.		2.14	2.56	3.7	3.0	3.6	00 00	3.5	20 20	3.87	3.08	3.68
	Con- di- tion.		7	C1 C2 C	10 - 01	m <b>−</b> m	en = €1	20-01	m → m	n - 01	n → 01	eo → eo	m − 01 m
Sample.	Kind.		၁	0	4	V	V		V	٧	V	V	A
02	Lab- ora- tory No.		5719	5720	8267	8268	8269	8311	8270	8271	8275	8276	8277
The state of the s	Locality, bed, etc.	WEST VIRGINIA-Continued.	Stanaford, Piney No. 1 mine—Continued. Same (run of mine, first car).	Same (run of mine, second ear)	Stanaford No. 1 mine, Beekley bed (main entry, 3,900 feet from drift mouth, 83-inch cut).	Same (left entry 2, 46-inch cut)	Same (main entry, S. 74° W., 3,900 feet from drift mouth, 83-inch cut).	Same (composite of Nos. 8267-8269)	Stansford No. 2 mine, Beckley bed (main entry, 1,000 feet southwest of drift mouth, 3½-foot	cut). Same (main entry, 2,900 feet S. 74° 30' W. of drift mouth, 50\frack-inch cut).	14 miles from; Stanaford (Pin-y) No. 3 mine, Sewell bed (left entry 6, 2,070 feet N.23° W. of drift	mouth, 514-inch cut). Same (right entry 7, 2,160 feet N. 23° W. of drift mouth, 504-inch cut).	Same (main entry, 3,200 feet N. 23° W. of drift mouth, 41½-inch cut).

1063	1063	1064	1064	1064	1064	1064	1064	1065	1065	1065	1066	1066	1066	1066	1066	1066
:	:				:			:		:	:				385	362
14, 632	14, 157	15,000	7729 '01			14,854	15,730 14,881 15,349	15, 781		14,290	15, 674			14, 508	15, 770 14, 940 15, 289 15, 786	14, 969 15, 325 15, 824
8, 129	2,254	6,00,00,00,00,00,00,00,00,00,00,00,00,00	), (S				8, 739 8, 267 8, 527			7,939	8, 708			8, 060	8, 761 8, 494 8, 770	8,316 8,514 8,791
50 :	3.0	2.2	2.0	2.7	2.3	2.3	27	2.6	20	2.7	1.00	2.1	1.6	1.00	1.00	00
	2828						26.93 8.43 8.43			5.10	2.13			5.28		
1.42	1.52	3641	L. 46			1.51	1.60	1.67		1.39	1. 52			1.43	1.55	
	84.55 84.55						89.77 86.24			85.33 36.33				82.56 84.90	89. 75	
	90.28						4.95 4.85			4.69				4.84	8	
.63	38.20	9.8.39	¥. %. %.	99.	89.59.	.72	.76	1.08	1.58.88	1.03	1.09	86.15	388	49.99		.65
3.82	4.88	2.24	2.50	2.68	2. 44	2.53	2.66	5.78	4.61	5.28	5.93	7.11	2.78	5.25	3.08	3.08
78.68	75.48	81.20 81.20 81.20	75.97 78.13	75.51	80.49 77.69 80.20	82. 27 77. 19 79. 61	81.74 77.12 79.55	81.79 77.19 79.89	86.37 20.30	24.34 77.15 79.99	84. 62 75. 26 77. 31	73.85	22.18 78.78 80.81	76.01 78.18	88.68 88.68 88.68 88.68 88.68	78. 42 80. 29 82. 90
14. 42	15. 49 15. 67	16.06.92	18.30	18.31 18.97	19.51 16.74 17.28	17. 73 17. 24 17. 78	18. 26 17. 17 17. 71	13. 65 14. 13	15.03 14.36 14.91	15.66 14.02 14.54	15.38 16.32 16.76	16.91 16.51 16.51	17.82 15.93 16.34	16.82 15.99 16.44	17.38 15.84 16.21 16.74	16.18 16.56 17.10
3.20	12.1	3.02	2.76	3.50	3. 13	3.04	3.05	3.38	3.66	3.55	2.65	3.03	2.53	2.75	2.28	2.32
-80	n-01:	n — 01		n – 01	es – es	∞ c₁	m → 01	20 - 23	m – 01		m = m	20-00	20-01	m-01	m — 01 m	-016
<u>i</u>	<	<	<	V	٧		<	4	<		V	<	<b>V</b>		<	<
8313	8278	8345	8343	8344	8342	8426	8341	8282	8283	8409	8353	8354	8355	8423	5547	5548
Same (composite of Nos. 8275-8277)	Stanaford (Piney) No. 4 mine, Beckley bed (main entry, 1.600 feet S. 74° W. of drift mouth,	49-inch cut).  3wall, Stonewall No. 2 mine, Fire Creek bed (left entry 1, 500 feet north of drift mouth, 34-inch	cut).  13 miles west of, Stonewall No. 3 mine, Fire Creek bed (room 3, entry 34, 2,700 feet west of drift	mouth, 564-men cut). Same (room 9, entry 32, 2,300 feet southwest of drift mouth, 564-men cut).	Same (entry 24, 1,700 feet west of drift mouth, 604-inch cut).	Same (composite of Nos. 8342-8344)	Same (pillar on entry 294, 2,000 feet west of drift mouth, 574-inch cut).	Sullivan, Sullivan mine, Beckley bed (main south entry, south mine, 320 feet from drift mouth,	494-inch cut). Same (main north mine entry 2, 200 feet from drift mouth, 584-inch cut).	Same (composite of Nos. 8282 and 8283)	Terry, Terry mine, Fire Creek bed (room 11 on right entry 2, 2,200 feet north of drift mouth, 593-	inch cut). Same (main entry 2, 2,200 feet west of drift mouth, 213-inch cut).	Same (left entry 1 in room 3, 1,000 feet south of drift mouth, 37-inch cut).	Same (composite of Nos. 8353-8355)	West Raleigh, Raleigh No. 2 mine, Beckley bed (1,800 feet northeast of drift mouth, pillar between right entries 5 and 55, 551-inch section, 522-	Inch cut).  Raleigh No. 1 mine (3,150 feet northwest of drift mouth, right entry 7, 58-inch section, 56g-inch cut), Beckley bed.

Table of chemical analyses—Continued.

nce.	Page of this bulletin.		1067	1068 1068 1068
Reference.	Bal- letin No.	398	261 48 48 48	
Calorific value.	British thermal units.	14, 391 14, 708 15, 899 14, 279 14, 915 15, 919	13, 475 13, 865 15, 536 13, 718 13, 919 16, 509 15, 635	14, 557 11, 574 11, 574 11, 574 11, 574 11, 572 11, 573 11, 588 11, 11, 11, 11, 11, 11, 11, 11, 11, 11,
Calorifi	Calo- ries.	7,995 8,171 8,833 7,933 8,286 8,286 8,844	7, 486 7, 703 8, 631 7, 621 7, 733 8, 616 8, 686	\$2.50 \$2.50
	Air-dry-ing loss.	3. 6 6.	8 8 8	
	Oxy-gen.	3.23 1.34 5.49 1.84	6.87 6.31 6.38	
	Nitro- gen.	1.55 1.71 1.49 1.56	1.27 1.31 1.46 1.47 1.47 1.66	
Ultimate.	Car-	82.27 84.09 90.90 81.37 84.99	75.75 76.86 85.64 86.60	
p	Hy- dro- gen.	44.4.4.4.4.67 88.6.6.6.6.7.6.7.6.7.6.7.6.7.6.7.6.7.6.7	4.4.6.2.2.3.4.4.3.4.4.3.4.4.4.4.4.4.4.4.4.4.4	
	Sul-	0.90 .992 .778 .81	1.00 1.15 1.11 1.11 1.31 1.31 1.31 1.11	111 111
	Ash.	7.33 7.49 6.04 6.31	10.45 10.75 10.27 10.60 10.10 10.25	2.5. 7. 7. 3.18 2.5. 8.2. 3.18 2.4. 4.10 2.4. 4.10
nate.	Fixed car-	75.46 83.36 77.12 73.45 81.89	57.11 58.77 65.85 57.88 59.72 66.80 66.80 60.35	5,15,8,1,1,1,1,5,5,5,5,5,5,5,5,5,5,5,5,5
Proximate.	Vola- tile mat- ter.	15.39 16.25 16.25 16.97 18.11	29.62 29.63 29.68 29.68 32.74 32.76	8228228228328
	Mois-	2.15	3.08	3. 14 3. 14 3. 2. 20
	Con- di- tion.	20120	H0100H010H01004	
Sample	Kind.	D D	< < 0	4 4 4 4
ŭ	Lab- ora- tory No.	5718	1144	396 394 394
	Locality, bed, etc.	West Raieigh, Raieigh No. 1 mine—Continued.  West Raieigh, Raieigh No. 1 mine—Continued. Same (run of mine, first car)	Coalton, Coalton mine, Toaring Creek (Lower Kittanning) bed (right heading 5, 6½-foot cut).  Same (left heading 6, 77-inch cut)  Same (lump, over 1½-inch sereen)	TUCKER COUNTY.  Thomas, Thomas No. 23 mine, Upper Freeport bed (last crossent near face of Fendleton heading, 2,000 feet bronn drift mouth, 35,4 inch cut).  S.600 feet northeast from drift mouth, 55,4 inch cut).  Same (Thomas air course, near face of Hinber, 54,4 inch cut).  Same (Layman heading, 7,800 feet northeast of drift mouth, 364-inch cut).  Same (dip 5, 6,800 feet northwest of drift mouth, 634-inch cut).

Felicit cut)  287 A 1 2 15 21.04 66.40 9.51 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.2	1068	1068	1069	1069	1069	1069	1000	1069	1069	1069	1070	1070	1070	1070	1070	1070
10450 A			:				:					:				
10450 A 1 2 15 2 2 94 83 75 77 24 1 127 1 12 2 15 2 1 12 1 12 2 15 2 1 12 1 1	13,854	15,682	14, 192	14,006	13,966	13, 620	13,872	15,621 13,893 14,493	15,629 14,016 14,564	15,658	13, 173 14, 564 15, 760					
10450 A 1 2 15 21.94 66.40 9.51 1.39 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.45 1.45 1.45 1.45 1.45 1.45 1.4	7,697	8,712	7,884	8,734	2,761 2,761 2,979	8,078	7,702	8,623 7,718 8,052	8,683 7,787 8,091	8,699	7,318 8,091 8,756	7,579	8,708 7,598 7,950	87.7.80 25.7.7.80 20.00	7,786	8,718
10450 A 1 2 15 21.94 66.40 9.51 1.39 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.25 1.45 1.45 1.45 1.45 1.45 1.45 1.45 1.4																
## 475 A 1 2 15 21.04 66.40 9.51 1.39  ## 474 A 1 3 30 22.77 77.24 1.45 7.78 1.45 4.45 82.14  ## 475 A 1 3 30 22.77 77.24 1.45 7.78 1.45 4.45 82.14  ## 476 A 1 3 3 90 22.77 77.24 1.45 7.85 1.15 4.45 82.14  ## 476 A 1 3 3 40 22.77 77.06 5.82 7.11  ## 476 A 1 3 2 2.44 77.06 5.82 7.11  ## 477 A 1 3 3.46 22.14 77.07 7.66 7.78 1.86 4.71  ## 478 A 1 3 3.46 22.14 77.87 7.76 1.65 7.78  ## 479 A 1 3 3.46 22.14 6.87 7.66 6.99 1.96  ## 470 A 1 3 3.76 22.04 66.87 7.67 7.66 6.99 1.96  ## 470 A 1 4.54 10.68 6.77 7.14 7.61 1.07 1.07 7.61 6.88 8.28  ## 402 A 1 4.45 10.68 6.71 1.84 7.71 1.67 7.61 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.0		3.86	3, 13													25.55
10450 A 1 2 15 21.94 66.40 9.51 125 4.75 11.25 4.45 89. 11.12 20.74 77.13 7.75 11.25 4.45 89. 11.12 20.74 77.13 7.75 11.25 4.45 89. 11.12 20.74 77.13 7.75 11.25 4.45 89. 11.15 4.85 89. 1		1.59	1.75			5.5	9			1.65	1.81					1.30
## 475 A 1 2 15 21.94 66.40 9.51 120 4 476 A 1 3 30 22.40 77.03 77.33 77.01 10450 A 1 1 122 20.97 77.13 77.33 1 105 4 476 A 1 1 2 2.15 21.94 66.40 9.51 120 4 476 A 1 1 2 2.14 07.73 77.33 1 105 4 476 A 1 1 2 2.14 07.73 77.33 1 105 4 476 A 1 1 2 2.14 07.73 77.33 1 105 4 476 A 1 1 2 2.14 07.73 77.33 1 105 4 476 A 1 1 2 2.14 07.74 77.03 7.33 1 105 4 476 A 1 1 1 22 20.40 77.00 6.58 77.01 7.06 1 105 6 4 476 A 1 1 1 22 20.40 77.00 6.58 77.01 7.06 1 105 6 4 476 A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		81.22	89, 14			81. 47	89.33					- :				80. 13 89. 34
## 475 A 1 2 15 21,94 66.40 9.51  ## 476 A 1 2 15 21,94 66.40 9.51  ## 476 A 1 2 2 15 21,94 66.40 9.51  ## 476 A 1 2 2 15 21,94 67.48 7.78 7.88 7.78 7.88 7.78 7.88 7.78 7.88 7.78 7.88 7.78 7.	0 0 0 0 0 0 0	52.	£ :			4. 71	5.00									4.87
## 475 A 1 2 15 21.94 66.40  ## 476 A 1 3 39 22.74 77.13 77.13 77.13 77.14 77.	1.26		1.77	288	2883 2883	1.04	828	8528	<u> </u>	1.85	1.07	1.85	20.05	1. 11	21.5	
10450 A A 1 2 15 15 15 15 15 15 15 15 15 15 15 15 15			5.82 6.06	77.08	7.83	7.57	7.7			7.02	6.88					
10450 A A 1 2 15 2 12 2 12 2 12 2 12 2 12 2 1																
10450 A A A A A A A A A A A A A A A A A A A	94	974	2223	0 4 4 5	288	252	288	75	823	204	2888	88	288	2002	818	64 64 64 64 64
10450 A A A A A A A A A A A A A A A A A A A	15		:06 :	: 83 :	7		: 9	:= :			55:	5.6	: <b>a</b> :	47		
10450 10	03	eo — 01	00 - 01 c	- 01 c	; ; m → 01:	. — cı	ico — ca	eo ← es	: :	; ; co — cı	: :: m = 01 m	01	100 01	es — es	• •	m → m
10	4	4	<	4	4	<	4	4	4	4	<	4	<	<	<	~
(composite of Nos. 393-397)  (a. 34 mine, Lower Kittanning or Davis (Birge heading, 55g-inch cut).  (room 6, off Roberts heading, 67g-inch cuty).  (right entry 2, off Foreman heading, the cut).  (composite of Nos. 474-476)  (composite of Nos. 474-476)  (right heading 3, 49t-inch cut)  (composite of Nos. 477-479)  (composite of Nos. 389-402)  (define of Nos. 398-402)  (composite of Nos. 398-402)	397	10450	474	475	476	10456	477	478	479	10430	308	399	400	401	402	10432
mo om o o o o o o o o o o o o o o o o o	Same (butt entry 8, 50rg-inch cut)	Same (composite of Nos. 393-397)	Thomas No. 34 mine, Lower Kittanning or Davis bod (Birge heading, 553-inch cut).	Same (room 6, off Roberts heading, 67f-inch cut).		Same (composite of Nos. 474-476)	12 miles southwest of; Coketon No. 26 mine, Upper Freeport bed (room 3, off east heading,	651-inch cut). Same (left heading 3, 641-inch cut)	Same (right heading 3, 40-inch cut)	Same (composite of Nes. 477-479)	18, 14 miles southwest of, Colecton No. 36 or Did No. 2 mine, Lower Kittanning bod straight bull-wheel heading, 14 miles from	drift mouth, upper bench, 43‡-inch cut). Same (lower bench, 18‡-inch cut)	miles from	Same (Ryan heading, 2 miles from drift mouth, 69-inch cut).	Same (southeast heading, pillar in shaft work- fag of No. 34, 900 feet from Arthur heading, 2	miles from drift mouth, 723-inch cut). Samo (composite of Nos. 398-402)

Table of chemical analyses-Continued.

ence.	Page of this buille-tin.	1071 1071 1071 1072 1072 1073 1073
Reference.	Bul- letin No.	
Calorific value.	British ther al units.	44474478 842 842 828 838 838 838 838 838 838 838 838 83
Calorifi	Calo- ries.	7.5% % 5.5% % 6.
	Air-dry-ing loss.	
	Oxy- gen.	44.0.4 47.7.4 10
	Nitro- gen.	1.520 1.532 1.652 1.654 1.654
Ultimate.	Car-	88.25 88.10.49 10.49 10.49 10.49 10.49 10.49
D	Hy- dro- gen.	7444 4 4 4 6 8 8 1 4 4 4 6 1 4 4 4 6 1 4 4 4 6 1 4 6 8 8 1 4 6 1 6 1
	Sul-	,
	Ash.	88. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.
nate.	Fixed car-	2852827827827828
Proximate.	Volatile mat- ter.	44044444444444444444444444444444444444
	Mois- ture.	23 .8. 3. 3. 3. 2. 2. 1. 1. 2. 2. 2. 2. 1. 1. 2. 2. 2. 2. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.
	Con- di- tion.	паменоменоменоменоменоменоменоменоменомено
Sample.	Kind.	4 4 4 4 4 4 4 4 4 4
02	Lab- ora- tory No.	481 482 482 407 408 408 408 408
	Locality, bed, etc.	WEST VIRGINIA—Continued.  TUCKER COUNTY—continued.  Thomas—Continued.  Is miles southwest of: Coketon No. 37 mino. Lower Kittaming or Davis bed (left heading 1 off Pratt entry, 028, inch ent).  Same (north heading 4, 468-inch cut).  Same (composite of Nos. 480–482).  It miles southwest of: Thomas No. 24 mine, Upper Freeport bed (crosscut between right heading 1 and rouns.), 1100 feet southwest of drift mouth, 658-inch cut).  Same (room 7 off lettentry 1, 800 feet southwest of drift mouth, 658-inch cut).  Same (composite of Nos. 407–409).  Thomas No. 25 mine, Upper Freeport bed (Stuart heading, 444-inch cut).  Same (composite of Nos. 407–409).  Same (composite of Nos. 407–409).

15	22	52	5 55	22	4		91012	1075	9/	9/2	9/	9/	=
. 1073	. 1073	. 1073	. 1073	. 1073	1074				1076	1076	1076	1076	1077
					894		341	341	341	341	381	341	381
15,683 14,046 14,363	15, 670			13, 590 13, 930 15, 300				10,266				11, 252	8,231 11,038 12,391
8, 713 7, 803 7, 979				7,550 7,740 8,500			6,754	5,148	6,228	6,106	7,573	6,251	7, 641 4, 573 6, 132 6, 884
		1.0		1.0	1.3		5.7	20.	5.4	5.3		3.0	18.3
	3. 45			8.55 6.51 7.15				17.04 18.52 18.53				22.81 13.72	
	1.55			1.39			1.03	1000	32.23	21.13	F. 38	1.13	
	80.33 81.13 88.46			74. 63 76. 53 84. 03			59.15	76.59 52.84 61.28	74.50 2.50 2.50 3.50	75.00	71.77	63.76	
	4. 73 4. 67 5. 09			5.07 4.91 5.39				4, 7, 4, 8 2, 4, 8 2, 12, 8				5.42	66
1.43	1.56 .86 .87 .95	1.65	35843	11111	3, 21		.42	64.	8,5,9	45.32	2.57	3.70	38 38 21 22 22 22 22 22 22 22 22 22 22 22 22
8.16	8.28		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		6.90		5.49	11.89	3.39	2.33	28.58	6.95	8.15 10.93
	75. 89 69. 86 75. 94	58.2 59.5 65.0	25.55.55.55.55.55.55.55.55.55.55.55.55.5	62.0 56.3 57.6 63.0	56.61 57.93 62.33		45,89	39, 43 45, 59	57.32 57.32	54.36 54.36	38.45 39.21	55.34 49.23 55.99	27. 80 37. 28 41. 86
	22.85 22.07 24.06	31.5 32.5 35.0	33.77.52	33.5	34.21 35.01 37.67		31.33	40.57 35.03 40.62	32.96 39.29	40.05 35.53 42.83	31.03	32.58 37.06	38. 62 38. 62 51. 79 58. 14
2.21	. 99	2.5	2.1	2.5	2.28		17. 29	13.77	16.11	17.04	1.94	12.08	25. 43
es ← es	m=0100	-000	-0100-10	90 m e e e e	- 01 ES		-01	m=01	n 03 0	n-010	2-03	m <b>−10</b> 1	20 to 10 to
4	4	۷ .	4 4		B		В	B	m	д	B	В	В
406	10434	7898	9868	9033	1237		5766	5763	5788	5787	2019	5765	6708
Same (room 5 off left entry 7, 61-inch cut)	Same (composite of Nos. 403-406)	Adrian, Florence mine, Upper Freeport bed (room 1 on main entry, 500 feet southeast of drift mouth, 61-inch cut).	Same (room 12 on man entry societies southers)  Same (buttentry 1 of left flat entry 1, 900 feet	Same (composite of Nos. 8986-8988)	Cowen, 2 miles northwest of; stock pile at Hoover's country bank, Eagle (?) bed.	W I OMING. BIGHORN COUNTY,a	Cody, 3 miles northeast of, Cody mine, see. 23, T. 53 N $_{\gamma}$ R. 101 W., 175 feet from opening, 44-foot	15 miles northwest of NE. 2 SE. 2 sec. 25, T. 55 N., R. 102 W., Allison mine, 4½ foot bed.	Kirby, near; SW 4 sec. 22, T. 44 N., R. 95 W., Price and Jones mine, 150 feet from opening, 6-foot cut.	2 miles southwest of; S. $\frac{1}{2}$ sec. 11, T. 44 N., R. 95 W., No. 1 pit, Gebo mine, 133-inch bed and cut.	2 miles southwest of; sec. 18, T. 44 N., R. 94 W.; Crosby mine, Eagle sandstone, main entry,	600 feet in mine; 74-foot cut. Il miles southwest of; sec. 33, T. 44 N., R. 96 W., Eades mine, 3½-foot cut.	24 miles east of; sec. 19, T. 44 N., R. 90 W., on Nowater Creek, at bottom of entry, 100 feet from surface, 6-foot bed, 65-inch cut.

a Certain cities and towns now included in Park County are here listed under Bighorn County.

Table of chemical analyses-Continued.

enco.	Page of this bulle-tin.		1077	1078	1078	1079	1079	1079	1080	1080	1081	
Reference.	Bul- letin No.		341	341	341	341	341	381	341	341		
Calorific value.	British thermal units.		9,506	13, 327 9, 688 11, 767	12, 964 9, 925 11, 682	13, 388 9, 322 11, 113	12, 281 11, 246 13, 902 13, 696	8,858 10,582 12,944	9,270	13, 194 10, 148 11, 723 13, 009	0 0 0 0 0 0 0 0 0 0 0 0	
Caloriff	Calo-		5, 281 6, 209.	7, 404 5, 382 6, 537	7, 202 5, 514 6, 490	7, 438 5, 179 6, 174	6,823 6,248 7,168 7,609	4,921 5,879 7,191	5, 150	7,330 5,638 6,513 7,227	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	Air-dry-ing loss.		J.6	6.3	7.7	5.5	2.9	ଟୀ ଓଡ଼ି	4.6	5.0	12.8	
	Oxy- gen.		25.52 25.52 25.53	28. 97 16. 13	12.87	15.55 15.55	21.35 21.16 14.63 15.52	26.59 14.46 17.68	25.66	17. 49 15. 80 17. 51		
	Nitro-gen.		1.02	# 50.1 # 50.5	328		818292		1.14	 885.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		
Ultimate.	Car-		53.27	57.08	55.53 55.43 55.43	523	73.88 73.88 82.88	50.84 60.74 74.29	52.42	74. 61 58. 42 67. 48 74. 87		
٦	Hy- dro- gen.		5.68	5.35	2.5.5		5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00		5.49	5.92	* • I	
	Sul-		1.76	74.0	1.02	4.83.83.	5848	.96 1,15 1.41	92.	25.12.2		
	Ash.		13.73	7.59	10.83	7.98	5.05	15.27	14.70	9.88	15.67	
mate.	Fixed carbon.		37.90 44.56	57.45	35.55	48.78 48.78	88.88 88.83 88.83	32.62 38.98 47.68	38.39	2.55.2 2.52.2 2.52.2	31. 64 43. 82 54. 65	
Proximate.	Vola- tile mat- ter.		39.30	3.7.5	S 4 8	45.84 35.12 41.87	#888 8888	85.81 52.33 52.33	31.87	5.85.85 8.65.85 8.62.85	28.73 36.35 45.31	
	Mois- ture.		14.94	17.67	15.04	16.12	12.84	16.30	15.04	13.43	20.96	
	Con- di- tion.		01	ಣೆಗಳು	m ← 01:	n-n:	n <del></del> 01 m	≓01 co	लका	m = 01 m	- R	
Sample.	Kind.		B	A	E	B	A	Ħ	B	æ	A	
20	Lab- ora- tory No		5778	5768	5769	5764	5770	6010	5767	5762	1999	
	Locality, bed, etc.	WYOMING—Continued.  Inditions country—continued.	Manderson, 14 miles north of: 7 miles southeast of Basin, sec. 19, T. 50 N., R. 92 W., Rogers and	Gapin mine, 59-inch cut. Meetcete, 3 miles northwest of, sec. 28, T. 49 N., R. 100 N., Black Diamond mine, 33-foot cut.	2½ miles southwest of; SE. ‡ sec. 13, T. 48 N., R. 101 W., Grey Bull mine, 5-foot cut.	10 miles northwest of; on Horse Creek, NE. 4 sec. 7, 7, 4, 49 N., R. 101 W., Orr mine, 125 feet	from opening, 48-inch cut.  19 miles southeast, of, 8 miles west of Ilo, sec. 26, T. 46 N., R. 99 W., Mayheld mine, on Grass Creek, 32-foot section, slightly weathered	Sample. Tensloep, 12 miles southwest of; sec. 33, T. 46 N., R. 89 W., Bud Kimball Dray, 150 feet from opening, side of main cutry, 70-inch bed,	Wiley, 4 miles southwest of; see. 34, T. 51 N., R. 101 W., West Wiley mine, 140 feet from opening, 46-	6 miles east of, sec. 10, T. 51 N., R. 100 W., East Whey mine, 42-inch cut.	Arlington, 4 miles southwest of, 14 miles southwest of Rock River; SW. 4 NW. 4 sec. 2, T. 18 N., R. 78 W., Cottontall mine, 150 feet in, E-floor	cut.

1081	1082	1082	1082	1082	1083	1083	1083	1084	1084	1084	1084	1084	1085	1085	1086	1086
341	341	341	341	341	316	316	316	316	316	316	316	316	316	316	316	316
8,354	12, 298 8, 098 10, 654	11, 927 8, 717 10, 991 12, 559	8, 424	10,354	12, 956											* * * * * * * * * * * * * * * * * * *
4,641	6,832 4,499 5,919	6,626 4,843 6,106 6,977	6,243	6,752	7,198											
12.8	9.8	5.8	6.5	1.7	3.1	1.1	3.0	4.1	5.2	 	4.9	8.1	5.3	2.9	1.4	11.8
		30.99 15.89 18.16	34.69	17.87	10.94											
		.91	.73	2.77	76.											
		51.84 65.36 74.68	51.13	67.94 75.71	85.02											
		4.3.96	3.70	2.72	1.98											1
1.01	4.1.1.4 2.2.3.3 3.0.2.3.3		8,8,8	825	351	2.8.2.	25.0	22.8	1.39	1.75	188	2488	83	255	× 88	
6.05	8.11	9.90	7.51	9.83	5.54	5.97	9.50	5.53	7.46	9.18	10.26	6.45	4.23	4.37	6.31	22.06
37.85	55.72	48. 18 48. 18	27.63	64.28	44.16	55.81 49.92 49.90	53.39 42.34 46.18	51.52 46.18 52.43	55. 94 43. 59 50. 24	54.97 42.45 47.28	52. 67 44. 41 50. 21	56.80 51.32 51.40	44.40	64. 65 44. 86 49. 41	51, 91 41, 10	47.29 41.93 55.60
30.08	2.5. 2.5. 2.5. 3.5. 5.5. 5.5. 5.5. 5.5.	35.97 45.35 51.82		22.23	41.10	48, 19 39, 74 43, 56	46. 61 39. 85 43. 46	48. 48 36. 37 41. 20	35.71 41.16	45.03 38.14 42.49	47.33 33.78 38.10	43. 20 36. 38 44. 75 48. 60	36.84	45.35 41.56 45.78	45.09	52.71 31.43 41.67 42.84
26.02	23.99	20.68	25.04	10.26	9.20	8.77	8.31	11.92	13.24	10.23	11.55	18.71	14.53	9.21	6.79	24.58
-101	m 01 €	o → 01 00		0 01 0	2 H C3	10 H 01	00 03	m 01	n=0	1878	∞ <b>– 0</b> 1	ಣಗಣಣ	-01:	n 01	0-0	000m
m	A	Ħ	A	A	B	д	a	В	В	Ħ	А	B	М	a	A	д
5441	5448	5298	5342	5209	3735	3664	3739	3740	3741	3743	3742	3647	3649	3645	3648	3736
Baggs, 4½ miles northeast of; SW. ‡ sec. 24, T. 13 N., R. 91 W., 6-foot cut.	5 miles northeast of; NE. 4 NE. 4 sec. 23, T. 13 N., R. 91 W., 40 feet from entrance, 72-inch cut.	20 miles north of, 1 mile west of Muddy Bridge stages station, NW. 4 SW. 4 sec. 12, T. 15 N., F. 92 W., Muddy Bridge prospect, 40 feet in, 73 foot section of knot out.	Same (67-Inch cut, 40 feet in).	27 miles north of; SE, ‡ SE, ‡ sec. 4, T. 16 N., R. 92 W., 25 feet in, 26-inch cut.	Carbon, SW. 4 SE, 4 sec. 26, T. 22 N., R. 80 W., No. 2 mine, 300 feet from opening, Main Carbon	bed, 7-foot cut, weathered. Same (280 feet from mouth of slope and 60 feet east of slope in unused room).	Same (50 feet off slope, 150 feet in mine)	One-fourth mile west of; NE, § SE, § sec. 27, T. 22 N. R. 80 W., Main Carbon bed, 55-inch cut.	Same (140 feet from mouth of slope)	21 miles southeast of; SW. 4 SE. 4 sec. 36, T. 22 N., R. 80 W., No. 7 mine, 800 feet from mouth	of slope, 90-inch cut. Main Carbon bed. Same, 86-inch cut	6 miles southeast of, SE, 4 SE, 4 sec. 20, T. 21 N., R. 79 W., abandoned prospect near Johnson's sheep camp, middle bed, 34-foot cut,	probably weathered.  9 miles southeast of; SE. \(\frac{1}{2}\) NW. \(\frac{1}{2}\) sec. 34, T. 21 N., R. 79 W., survey party opening, 4\(\frac{1}{2}\)-foot cut.	12 miles south of; SW. ‡ NW. ‡ sec. 28, T. 21 N., R. 80 W., 280 feet from opening, 1654-inch		Como, 2 miles west of, SW. 4 NW. 4 sec. 32, T. 23 N., R. 89 W., 6 feet from mouth of drift, 54-foot cut.

Table of chemical analyses-Continued.

	ž	Sample.			Proximate.	mate.			TO.	Ultimate.				Calorif	Calorific value.	Reference.	ence.
Locality, bed, etc.	Lab- ora- tory No.	Kind.	Con- di- tion:	Mois- ture.	Vola- tile mat- ter.	Fixed carbon.	Ash.	Sul-	Hy- dro- gen.	Car- bon.	Nitro- gen.	Oxy-gen.	Air- dry- ing loss.	Calo- ries.	British thermal units.	Bul- letin No.	Page of this bulle- tin.
WYOMING-Continued.																	1
CARBON COUNTY-continued.																	
Como—Continued. Same, SE.4 NW. ‡ sec. 32, T. 23 N., R. 80 W., 6 feet from opening, lower bench, surface	3737	g	-63	20.33	32, 29	44.63	2,75	0.62					8.8			316	10%
sample, 72-inch cut,). Same (upper bench, weathered, 73-inch cut).	3738	д	100 110	18.43	35.09	26.02	. 58	2888					9.3			316	1080
Same, SW. 4 SE. 4 sec. 26, T. 22 N., R. 80 W., 150 feet from opening, lower bench, 4-foot cut.	3739	m m	3 to 1 to 3	8.31	44.99 39.85 43.46	55.01 42.34 46.18	9.50	1.00					3.0			316	
main Carbon bed.  n, 5 miles southwest of; SE. ‡ SW. ‡ sec. 7, T. 13 N., R. 87 W., Carbondale mine, wall	6642	B.	ω <del>–</del> α	13.02	33.37 38.37 38.37	51.52 45.51 52.32	8.10	1 12 28 1 28	5.70	69. 43	1.35	23.36	7.9	5,955	10, 719		1087
of room 20 feet from main entry, 34-inch cut. 6 miles southwest of; NE. 4 SW. 4 sec. 13, T. 13 N., R. 88 W., Stemp Springs mine, wall of room	6644	В	ω <del>⊢</del> ω	10.78	42.31 36.01 40.36	57.69 46.27 51.86	6.94	2523	05.73	76.56	1.45	14.95 20.86 12.65	5.1	6,232	13,588 11,218 12,573		1087
10 feet from minor entry, 37-inch cut.  Dixon, 5 miles east of: mouth of Savery Creek, SE. 4 SE. 2 sec. 6, T. 12 N., R. 89 W., Angler mine.	5445	Ħ	ಣ್ಣನ	14.29	43.77 31.82 37.13	56.23 57.04	20.00	2.73	5.56	76.29	585	13.72	4.5	7,575 5,889 6,871	13,635		1088
(main entry, 11-foot bed, 8-foot cut).  Same (210 feet from mouth, north opening from drift driven to left, 11-foot bed).	5446	. щ	ω <u>∺</u> α	15.21	39.43 32.77 38.65	60. 57 48. 51 57. 21	3.51	220	5.77	75.21 59.91 70.66	1.26	17.97 29.23 18.52	6.2	7,296 5,849 6,898	13, 134 10, 528 12, 416		1088
Darling mine, 265 feet in, drift from main entry, 15½-foot bed, 7½-foot cut.	5449	m m	0 H 24	14.35	40.32 31.85 37.19	59.68 48.69 56.84	5.11	40.04	5.02	73.71 62.37 72.82	1.21	19.32 25.26 14.59	5.3	7,196 5,997 7,002	12,953 10,795 12,604	381	1088
7 miles east of: 4 miles northwest of Slater, Colo., SW. 4 NW. 4 sec. 9, T. 12 N., R. 89 W., Martin mine, 430 feet from main entry, 8-foot	5444	g	ಬ್ಟುಬ	15.80	39.55 33.29 39.54 41.23	60.45 47.47 56.37 58.77	3.44	22.22	5.25 5.89 11.90	77. 44 62. 01 73. 64 76. 78	1.37	15.52 26.98 15.37 16.02	5.7	7,446 5.957 7,075 7,377	13, 404 10, 723 12, 735 13, 278		1088
12 miles east of, 4 miles northeast of Slater, Colo., S.E. ‡ SW. ‡ sec. 8, T. 12 N., R. 88 W., Linde opening, 40 feet in, main entry, 8-foot cut.	6803	M	How	16.11	29.02 34.59 42.91	38.61 46.03 57.09	16.26	. 94 . 94	5.28 4.16 5.16	50.42 60.10 74.55	1.05	26.52 14.55 18.05	11.7	4, 933 5, 880 7, 294	8,880 10,584 13,129		1080

1089	1089	1089	1090	1090	1090	1001	1001	1001	1092	1092	1092	1092	1092	1002	1002
316	316	316	316	316	316	316	316	316	316	316	316	316	316	316	316
					12,062 13,234 13,774				11,936	13, 781		11,248 12,438 13,531		11,070 12,551 13,516	13, 567 11, 302 12, 571 13, 630
					6,701 7,352 7,652	60, ()			6,631	*		6,249 6,910 7,517	7,542	6,150 6,973 7,509	7,537 6,279 6,984 7,572 7,605
5.0	6.2	16.7	18.7	21.0	3.6	4.1	11.0	1.8	1.9	00	7.7	1.4	2.2	2.2	2.2
					12.57				18.60			22.68 15.67 17.04	17.13		16.63 23.07 15.69 17.00
					1.73	3			1.76	2.03		1.45	1.58	1.12	1.52
					68.68 75.35 78.43	07.20			67.62	78.07		62.82 69.47 75.57		62.45 70.80 76.25	76. 65 62. 66 69. 70 75. 57
					5.24				5.28	5.14		5.50			5.50 5.32 5.32 5.32 5.32
55	38.45	4:8:4:	55.84.0	31.63	1.01	1.88	26.53	27.89	288	888	12.85	.39	33	44. 50. 54.	49 54 59
6.65	5.22	2.97	6.78	3.56	3.58	1.98	4.33	2.73	5.88	4.47	7.41	8.07	8.00	6.29	6.99
	53.11 44.41 52.04				50.99 55.94 58.23	51.88	55. 27 55. 27	49. 59 53. 64	25. 27 48. 81 52. 77	56.36 45.15 48.48	38.92 48.77	44.72		40.25 49.14	41. 91 46. 62 50. 54
37.54	46.89 35.71 41.84				36.58 40.13 41.77							42.69 47.21 51.35		41.66 47.23 50.87	41.01 45.61 49.46
13.28	14.66	30.13	27.39	29.96	8	9.87	19.26	7.55	7.51	6.87	20.19	9.57	10.65	11.80	10.09
1 2	00 H 01	2000	o → E9 c	0 FEE 144 C	-010	*00	2700	o	2=61	0 - M	0 100 100 100	o → E4 co ·	4-01	8 H C) C)	4-004
В	В	В	Д	Д	A	щ	д	A	А	М	Д	м	В	д	д
3644	3650	3651	3924	3927	3480	3481	3931	3501	3209	3507	3508	3606	3609	3607	3605
Elk Mountain, 13 miles south of; lot 3, sec. 4, T. 20 N., 18. 80 V., in tunnel 11 feet from mouth, 7765-	oot cut, lov of; lot 2, s bed (low	4g-foot cut). Same (upper bench, 63-inch cut)	Fort Steele, 10 miles northeast of; NW., 4 NE., 4 sec. 2, T. 22 N., R. 84 W., upper 5 feet of bed weath-	104 mies northeast of, SW. 4 SW. 4 sec. 36, T. 23 N., R. 84 W., upper 10 feet of bed weathered.	12 miles southwest of; SW. ‡ NE. ‡ sec. 19, T. 19 N., R. 85 W., McCord opening, 100 feet from mouth, 62-inch cut.	124 miles southwest of; SE, 4 NW. 4 sec. 19, T. 19 N., 18, 85 W., 200 feet from mouth of prospect	13 miles northwest of St. A NE., 4 sec. 18, T. 23 N., R. St. W., Miller prospect, 49-inch cut, surface	14 miles south of; NE. 4 NE. 4 sec. 28, T. 19 N., R. 85 W., old Larson mine, 60 feet from mouth,		4,200 feet to right of main gangway. 24-foot cut. 15 miles south of; SW, \(\frac{1}{2}\) NE, \(\frac{1}{2}\) Sec. 35, \(\frac{1}{2}\), 19 N., \(\frac{1}{2}\). 85 W., Phillips mine, 400 feet from opening,	16 miles south of; NW. ‡ SW. ‡ sec. 36, T. 19 N., R. S. W., abandoned slope, 150 feet in, 1½-foot set in, 1½-foot	Hanna, Hanna No.1 mine, Hanna No.1 bed (4,000 feet south of slope, entry 20, middle bench, 94-foot cut).	Same (west side entry 19, middle bench, 8-foot out).	Same (725 feet from slope, west side entry 7, 4-foot cut).	Same (1,200 feet south of slope, east side entry 6, upper 7-foot bench, 79-inch cut).

Table of chemical analyses—Continued.

enco.	Page of this bulle-tin.		1092	1093	1093	1093	1093	1093	1093	6 0 0 0 0		1093
Reference.	Bul- letin No.		316	316	316	332	332	332	332	332	332	9
Calorifie value.	British thermal units.		0 0 0 0 0 0 0 0 0 0	10, 890 12, 298 13, 295	10,000	11,102	13, 460			10,755	13, 216 10, 706 12, 222	13,246 10,856 12,235 13,205
Calorifi	Calo- ries.		0 0 0 0 0 0 0 0	6,050 6,832 7,386	012.410	6,168	7,478			5,975	7,342 5,948 6,790	7,359 6,031 6,797 7,336
	Air-dry-ing loss.		1.9	2.5	2.6	3,8	4.1	4.0	3.5	2.3	3.8	5.4
	Oxy-gen.			27. 11 19. 12 20. 67		4 8 9 4 8 9 6 9 9 7 9 9 8 9 9				24.73	18.04 24.17 15.00	16.25
.:	Nitro-gen.		0 1 0 1 0 0 0 0	1.06	CT :					88.66	1.08	1.05
Ultimate.	Car-		0 0 0 0 0 0 0 0 0 0	59. 66 67. 37 72. 84	07:00	0 0 0 0 0 0 0 0 0				61.24	75.24 61.58 70.30	76.19
2	Hy- dro- gen.		0 0 0 0 0 0 0 0	22.4.4.2	TO .T.					5.56	6.37	6.18
	Sul-		0.51	25.85.45	888	188	822	35.45	. 8. E.	÷ 8 8	888	8888
	Ash.		6.12	6.64	4.53	5, 19	3.88	5.89	5.57	7.31	6.77	6.52
nate.	Fixed carbon.		40.68	48.39 39.33 44.41 48.01	42. 42	41.69	50, 54 43, 10 49, 35	51.64	51.13 41.40 46.90	50.06 41.07 46.30	50.45 41.08 46.89	50.82 44.74 50.42
Proximate.	Vola- tile mat- ter.		43.39	51. 61 42. 58 48. 09 51. 99	40.71	40.80	49. 46 40. 36 46. 21	48.36 45.62	48.87 41.30 46.79	40.94	49. 55 39. 75 45. 38	49.18 42.23 45.53
	Mois-		9.81	11.45	12.34	12.32	12.66	11.49	11.73	11.30	12.40	11.27
	Con- di- tion.		-2	100 H 00 F	# E9 c	o → 59	<b>∞</b> ⊢ α	m = 67	10 H ca	n = α	(m = 0)	10-01
Sample.	Kind.		æ	a	A	4	V	V	V	O	C	4
S	Lab- ora- tory No.		3608	3610	3611	3160	3161	3162	3163	3363	3396	7131
	Locality, bed, etc.	WYOMING—Continued. CARBON COUNTY—CONTINUED.	Hanna, Hanna No. 1 mine—Continued. Same (upper 5 feet of middle bench)	Hanna No.2 mino, sec. 20, T. 22 N., R. SIW., Hanna No. 2 bed (room 16 entry 4, lower bench, 8-foot cut).	Same (entry 6, upper 8 feet of middle bench, weathered).	Same (1,900 feet south of slope)	Same (2,000 feet south of slope)	Same (1,700 feet south of slope, lower bench)	Same (1,700 feet south of slope, middle bench).	Same (run of mine, sample 1)	Same (run of mine, sample 2)	Same (5,000 feet southwest, room 40 off entry 5, lower bed, 83 feet).

			22.21	,			OUSLL				0 1 1 1		J 34. 4. 4. 4.		
1093	1094	1094	1094	1095	1095	1095	1096	1096	1096		1096	1096	1097	1097	1097
9	316	316	316	316	316	316	316	316	316		316	316	316	316	316
10,638	13,005											10,245 12,096 12,969	10,874	12, 221	12, 965 12, 163 12, 922 12, 960
6,713	6,225											5, 690 6, 720 7, 205	6, 041 6, 948 7, 194	5,846 6,790 7,137	5,925 6,757 7,179 7,200
6.93	2.1	3.1	3.3	.6.	2.6	6. 6.	7.9	9.1	4.4		-ji	. v	3.7	5.7	4.6
26.11 17.58	18.93											27.34 16.19 17.37	27.31 18.05 18.70	28.04 19.94 19.91	25.98 17.15 18.23 18.30
1.08	1. Io												1.59		1.534
68.80	74.03			: : :											70.30 74.70 75.00
5.76	5.41														5.05
. 37		33.23	£ & &	9888	55.25	.45	3 3 3 3 4 3 3	38.23	3,41	3.79		22.27	1.10	36.44	333
6.24	4.17	4.29	4.49	4.56	6.10	5.68	3.14	5.83	8.70		6.41	6.73	2.97	4.19	5. 16
14.87	42.03	49.67 42.11 47.75	50.19 41.11 46.87	49.40	28.85	47.32 39.78 45.79	48. 99 48. 08 57. 88	37.31 46.88	49.78 44.07 50.59	56.20		45.34 53.55 57.41	48.86 56.20 58.19	45.75 53.13 55.85	46. 47 53. 00 56. 31
36.93	42. 59 47. 97	50.33 41.78 47.38	49.81 42.11 48.01	50.60 46.60	43.21	52.08 41.42 47.67	51.01 32.38 38.98	37.64 47.29	34.34 39.42	43.80		33. 63 39. 72 42. 59	35.11 40.38 41.81	36.16 42.00 44.15	36.06 41.12 43.69
11.96	11.21	11.82	12.29	13.04	11.89	13.12	16.93	20.41	12.89	:	12.33	15.33	13.06	13.90	12.31
cs c	2-01	0 H 0	0 H 0	m-01	о <b>н</b> ого	20-0	m <b>−1 01</b> 0		2401	8 _	-610	-010	*-0700	#	4-010-4
TA-	B	В	В	m	щ	д	Д.	В	В		В	Д.	В	A	m
7130	3612	. 3613	3614	3617	3615	3616	3822	3929	3779		3781	3780	3790	3922	3920
Same (2,500 feet southwest, room 37 off entry 2, lower bed, 65-inch cut).	Hanna No. 3 mine, sec. 18, T. 22 N., R. 81 W., Hanna No. 1 bed (1.500 feet from mouth of slope,	?-foot cut). 1, 74-inch cut)	Same (entry 4, 1,410 feet in, 7½-foot cut)	# mile north of; sec. 18, T. 22 N., R. SI W., 40 feet from mouth of prospect, No. 2 bed, middle	1 mile northeast of; SW 4 sec. 17, T. 22 N., R. 81 W., 1400 feet from mouth of prospect, bed between	Julie southwest of; SE. 4 NW. 4 sec. 24, T. 22 N., R. 82 W., 40 feet from mouth, first bed below	4 miles north of; NW. 4, sec. 31, T. 23 N., R. 81 W., 5-foot, cut in prospect, surface	8 miles north of, weathered.  8 miles north of, in NE. 4 NW. 4 sec. 2, T. 22 N., R. 85 W., 3§-foot cut, weathered.	10 miles north of; NE. 4 SE. 4 sec. 33, T. 24 N., R. 81 W., Rock Crossing mine, 300 yards south	of Medicine Bow River (80 feet from opening, southeast corner of room, 49-inch cut, nobably weathered).	Same (northeast corner of room, 4-foot cut)	11 miles northeast of; see. 35, T. 24 N., R. 81 W., Coulter mine, 4-foot cut.	16 miles northwest of; SW. ‡ NE. ‡ sec. 11, T. 24 N., R. 83 W., 65 inch cut.	Iron, 1 mile southeast of; NW. 4 SW. 4 sec. 17, T. 25 N., R. 85 W., Kronkheit mine (Lower bed, S-loot cut, 240 feet in).	Same (Upper bed, 64-foot cut)

Table of chemical analyses-Continued.

ace.	Page of this bulletin.		1097	1098	1098	1098	1090	1099	1099	1099	1100	1100
Reference.	Baul- letin No.		316	316	316	316	316	316	316	316	316	316
value.	British thermal units.			9,130 11,189 11,722	11, (30			10, 517 12, 442 12, 922	13,000			
Calorific value.	Calo- ries.			5,072 6,216 6,512	0,028			5,843 6,912 7,212	7,259			
	Air-dry-ing loss.		24.3	10.0	eri eri	5.2	5.8	7.4	6.7	7.0	23.3	11.9
	Oxy-gen.			23.25	C4.42			29.78 18.98 19.79	19.99			
	Nitro- gen.			1.58	23 : :			1.44	1.79			
Ultimate.	Car- bon.		: :	53.87 66.03 69.17	09.42			58.87 69.64 72.66	73.38			
P	Hy- dro- gen.			5.52	4.4(			5.60	4.84			0 0 0
	Sul-		0.15	23.8.8	27.	44.	. 55	22.02.02.02.02.02.02.02.02.02.02.02.02.0	45		2824.03	. 59 . 59
	Ash.		3.37	3.71	3.87	6.59	3.33	3.52	3.25	6.11	10.92	8.83 10.93
mate.	Fixed car-		32.37 48.91	51.53 43.38 53.17 55.70	30.59	48.95 45.58 53.02	57. 42 48. 57 56. 46	58.73 44.86 53.07 55.37	46.57	56.31 48.34 55.91	50.16 30.52 45.30 54.06	43.59 53.94 60.56
Proximate.	Volatile matter.		30.45	48. 47 34. 50 42. 28 44. 30	31.90	33.79 39.31	42.58 34.13 39.67	41.27 36.16 42.77 44.63	36.13	32.03 37.02	25.93 25.93 45.94	28.39 35.13
	Mois-		33.81	18.41	33.64	14.04	13.97	15.46	14.52	13.54	32.63	19.19
	Con- di- tion.		HO	n → c1 cn	4-0	20-0	10 H 33	m –101 m	4-0	10 H 03	m H 01 m	-101m
Sample.	Kind.		щ	м	М	æ	р	В	B	В	р	A
02	Lab- ora- tory No.		3916	3919	3923	3925	3915	3917	3918	3921	3926	3928
	Locality, bed, etc.	WYOMING-Continued.	Iron—Continued.  14 miles southeast of; NW. 4 SE. 4 sec. 20, T. 25 N., R. 85 W., Burlington prospect, 54-foot cut.	weathered.  2 miles southeast of, SW. 4 SE. 4 sec. 20, T. 25 N., is. s5 W., Penn-Wyoming mine, 200 feet from mouth, 38-inch cut.	24 miles southeast of; NW, 4 NW, 4 sec. 20, T. 25 N., R. 85 W., 44-foot cut, weathered.	34 miles southwest of, SE, 4 NE, 4 sec. 23, T. 25 N., R. 86 W., Fieldhouse opening, upper 50	6 miles of 95-inch bed, weathered. 6 miles southbeagt of, NE. ‡ SW. ‡ sec. 35, T. 25 N., R. 85 W., Miller mine (80 feet from mouth,	lower bed, 24-loot cut). Same (80 feet from shaft, entire upper bed, 104- foot cut).	Same (40 feet from foot of shaft, upper bed, lower bench, 64-foot cut).	74 miles southeast of NE. 4 SW. 4 sec. 9, T. 24 N., R. 85 W., O'Brien Springs opening, 40 feet	from mouth, 4s-foot bed.  10 miles south of, NS. 4 WW. 4 sec. 26, T. 24 N.,  IR. 86 W., Burlington prospect, 20 feet from mouth of slope (lower 62 inches of 104-foot	bed, weathered). Same (upper 4g feet of 104-foot bed, weathered).

1100	1100	1100	1011	1011	1011	1011	1011	1011	1102	1102	1102	1102	1103	1103	1103
316	316	316	341	316	316	341	316	341	341	341	316	316	316	316	316
			9, 133			11,009	13, 520	9,722	12, 438	11,970			10,621	12,290	
			5,074 6,263 6,823			6,116		5,401	5,719 6,910	6,650 7,394			5,902 6,628 6,813	6,828	
21.9	30.0	30.5	7.1	7.3	6.7	C.1	21.2	C.1	5.6	1.9	3.1	2.5	∞ .	5.1	2.3
			32. 52 19. 32 21. 05			20.83	14.51			24.66 14.53 16.15			28.09	21. 25	
			1.07			1.32	1.62	1.34	£.6-				1.59		
			53.58			63.75				58.79 68.06 75.67			62. 25 69. 91 71. 86	72. 10	
-			5.87	3 : :		5.17		5.74	4.7.4. 2.7.82	5.53			5.37		
.64	888	888	5.25.8	9479	35.5	. 55	198.91	48.4.	17.	1.44	.53	30.00	3888	22.33.35	2888
3, 59	5.84	3.68	6.65	6.56	6.83	8.44	10.32	3.78	1.60	8.69 10.06	3.23	3.20	2.2. 17.11	5.63	4.88
34.94	54. 01 29. 39 48. 50	51.51 27.94 45.86	25.55 25.25 25.25 25.25	58.93	53.44	52. 92	58.40 34.55 48.05	20.20	59.28	43.14 49.94 55.53			58.81 54.57 56.09	37.38 49.54 53.53	50. 23 57. 86 61. 31
29.75	45.99 27.67 45.66	48. 49. 48. 48. 10	42.15 42.15 5.15 8.15	38.37	33.57	33.87	41.60 27.04 37.60	36.46 45.12	38.52	34. 55 40. 00 44. 47			41. 19 38. 04 42. 72 43. 91	32. 45 43. 00 46. 47	31.70 36.52 38.69
31.72	39.40	39.07	18.98	14.12	13.23	10.14	28.09	19.20	17.24	13.62	12.08	11.17	10.96	24.54	13.19
	∞⊣α	<b>п</b> –п	m=010	9 H 01 C		2 — C1	e = 01 €	÷-00	5 FO FO	2000	-63	m cq	m → e1 co	4-10100	-030
<b>m</b>	щ	м	м	m	g	m	В	В	м	м	g	Д	м	A	g
3930	3807	3824	5818	3478	3477	5297	3479	5324	5815	5340	3538	3544	3548	3806	3826
Same, in SW, 4 SE, 4 sec. 26, T, 24 N., R. 86 W / 25 feet from month of slone, under 52	V. t sec. 7, T. 24 I weathered (low	out)	27 miles northwest of, SW. 4 NW. 4 sec. 8, T. 27 N., R. 89 W., old Speyer mine, 42-foot cut.	Rawlins, 3 miles southwest of, NE. 4 NW. 4 sec. 36, T. 21 N., R. 88 W., Dillon mine, 300 feet	Same (room 2, 360 feet in, 58-inch cut)	Same (30 feet in, 44-foot bed and cut)	7 miles southeast of; SE. 4 SE. 4 sec. 13, T. 20 N., R. 87 W., survey party opening, 44-foot cut,	weathered. 8 miles sec. 6, T. 20 N., R. 88 W., Nebraska mine, 180 feet in, 8-foot	8 miles west of; SW, ‡ SW, ‡ sec. 12, T. 21 N., R. 89 W., surface exposure near Union Pacific	1. It., weathered, 6-loot cut. 27 miles southwest of, SE, ‡ sec. 4, T. 17 N., R. 90 W. 14 miles east of Sulphur stage station, Robertson opening, base of bed not exposed,	Walcott, 24 miles north of; SE. 4 SW. 4 sec. 14, T. 21 N., R. 484 W., Buckley and Ryan mine, 4-foot cut.	(290 feet northeast of mouth of slope, room 4). Same (375 feet from mouth, entry 5)	8 miles southeast of, NW. 4 SE. 4 sec. 1, T. 20 N., R. 83 W., near mouth of slope, 844-inch cut.	12 miles north of, SE. 4 SW. 4 sec. 25, T. 23 N., R. 94 W., abandoned prospect 4 mile east of North Platte River, 80 feet in, 7-foot cut,	(weathered). Same, 374 feet in (fresh surface)

Table of chemical analyses—Continued.

.ce	Page of this bulletin.		1103	1103	1103	1104	1104	1104	1104	1105	1105	1105
Reference.	Bul- letin No. bi		316	341	341	341	341	341	341	341	341	341
	British I thermal libraries.		10, 413 12, 051 12, 836 12, 874	8,422	12, 283 11, 567	5, 931 9, 126	7,328	5, 150	9,003	8,732	6,294	11,520 5,645 7,096 11,482
Calorific value.	Calo- I		5,785 6,695 7,131 7,152	4,679								6, 400 3, 136 3, 942 6, 379
0	Air-dry-ing Closs.		8.3	4.4	4.2	23.3	4.3	21.4	3.3	1.5	2.4	.6.3
	Oxy-gen.		27. 27 17. 59 18. 73 18. 80							30.79	18.81	
	Nitro-		. 83 . 96 1. 02 1. 03							25		
Ultimate.	Car- Doon.		61. 06 70. 66 75. 27 75. 58		: : :		: : :			51.96	74.77	
Ţ,	Hy- dro- gen.		2.4.4.4. 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	::						5.39		
	Sul-		0.33	. 52	1.26	88.4	22.53	\$ 15 15 15 15 15 15 15 15 15 15 15 15 15	88.28	83.33	1.17	25.4.5.5
	Ash.		6.12	8.56 11.10	6.53	7.71	12.21	10.69	6.67	10.58	38.46	38. 20
nate.	Fixed carbon.		49.35 57.11 60.84	20. 54 26. 63	29.95 36.71 47.59	28.83 4.88 8.88 8.88 8.88 8.88 8.88 8.88		36.00	47.86	25.25	20.23.08 20.868 20.868	49.34 18.68 23.48
Proximate.	Vola- tile mat- ter.		31.77 36.77 39.16	48. 03 62. 27	70.05 33.89 43.94	43.88.60 43.89.60 73.46.60	55.29 55.29 55.29	5.88.88	143.42 16.62 16.63	49.25	27.286	28.50.66 28.30.40 23.30.40
	Mois- ture.		13.59	22.87	22.87	35.01	22.92	37.86	21.90	19.92	15.58	20.44
	Con- di- tion.		H004	01	юно:	m=010	2-1010	o 010	2-1010	2-101	ю <del>н</del> о	m = 01 m
Sample.	Kind.		д	E	В	M.	m -	m	A	щ	Э	m
δχ	Lab- ora- tory No.		3808	5325	5326	5422	5318	5321	5330	5322	.5320	5317
	Locality, bed, etc.	WYOMING-Continued.	Walcott—Continued.  124 miles north of; NW. ‡ SW. ‡ sec. 25, T. 23 N., R. 84 W., 700 yards southeast of Shirley Road, ‡ mile east of North Platte River, abandoned mine, 7‡-foot cut.	CONVERSE COUNTY.  Big Muddy, 2 miles north of; sec. 25, T. 34 N., R. 77 W.,  Cole Creek mine (680 feet from opening, lower	bed, 33-foot cut). Same (960 feet from opening, upper bed, 43-foot cut).	14 miles north of; sec. 36, T. 36 N., R. 77 W., surface outcrop, 2½-foot cut.	Douglas, 13 miles west of; 70 feet from mouth of mine, 22-inch cut, weathered.	6 miles northwest of, sec. 27, T. 33 N., R. 72 W., La Preb bed, 70 feet northeast of opening, 13.	Glenrock, sec. 4, T. 33 N., R. 75 W., Glenrock No. 1 mine, 2,600 feet in, Glenrock bed, 5½-foot cut.	# mile southeast of; sec. 4, T. 33 N., R. 75 W., Glenrock No. 2 mine, 1,100 feet in, Glenrock	bed, 6-loot cut. 4 miles southwest of, sec. 12, T. 33 N., R. 76 W., prospect opening, 3-loot cut, weathered.	14 miles north of; sec. 30, T; 36 N., R. 75 W., surface outcrop, 50-inch cut, weathered.

1105	:	1105	1105	9011	9011	2011	1107	1107	8011	110S	6011	1100	1110
	:		=		=	-	=		=	-			
55285	900							#					316
9, 527 9, 527 13, 475	S, 928 10, 519 13, 095	12,072	10,330	8,465 11,413	15,00			8, 233 11, 521 12, 154	7,866 11,691 12,659	9,77	12, 157	11, 664	12, 643 12, 236 13, 000 13, 003
5, 293 5, 293 7, 486	4,960 5,844 7,275	7,818 5,615 6,828	5,739 7,676 6,676	6,310	O, 110			4,574 6,402 6,732	4, 370 6, 495 7, 033	5, 433 6, 901	6,55	6,480	7,7.6,7.7 7,198 1,
11. S 12. 0	6.5	22	9.7	19.3	18.7	25.4	19.6	7.7	26.0	11.6	15.4	10.6	6.2
	22.58 10.77 13.40	13.55 13.75	12.01	11. (8				20.33 20.83 10.01		33.17	12.53 12.53 12.53 13.53	10.00	32.37 17.18 18.25 18.37
	70 83 1.03	1.089		#111			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.06		5.83	1.1.	1. 0.#	1.15 1.46 1.55 1.55
		55.28 57.28 57.38 57.38					0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	48.52 67.91 71.62		55.91 71.02	6.52	(4. 51	55.35 74.11 75.02
	5.16	. 8. 9. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	999	TA "O				6.43		6.13	÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷ ÷	£.30	6.08 4.72 5.01 5.05
	9.72	5.60 6.81	7.33	98.33	:8:2: :8:2:	888	5.62 .58 .81	8887	1.07	1.13	3433	1.09	1935
11.55		6.21	10.98	5.58	6.98	8.47	5.64	3.71	5.15	3, 15	4.50 5.84	9.09	4.62 5.86
33.07 46.77 31.95	48.89 33.82 39.85 49.61	39.56 48.11	25.55 5.55 5.55 5.55 5.55 5.55 5.55 5.5	28.73 28.73	48.40	58.83 58.83 58.83	49.79 46.05	56.56	31.08 50.66 51.86	42,75 54,30	52.55	16.85	38.33 48.65 51.67
37.61 36.23 36.53	51. 11 51. 11 51. 36 50. 39	37.56 45.68	25.55 52.55 52.55 52.55	# 33.82 # 13.82 # 13.82	15.53 25.53 35.53	45.85 43.83 81.83 81.83	20.21 23.15 46.11 50.11	8844 8454	\$.5 5.5 1.8 1.8	32.83 41.70	1853 1853	1222	\$5.85 \$5.85 \$8.33
17.74	15.12	17.77	14.03	25.82	23.49	33.51	28.09	28. 55	32.72	21.27	22.98	20.11	21.20
- nn m - 1	3 m → 63 m	-i 010		o ca c		co cs	œ → 64 c	5 - 61 W	-01m	-010	0-010	-	2 - C1 C2 -4
		=	m	<b>m</b>	=	8	=	æ	<b>m</b>	~	~	g	=
1976	2278	9320	*9321	6132	8119	6542	6602	2019	*9219	6712	11129	9773	4354
Aladdin, Stilwell mine, room 1, off entry 4, or east entry 2 in new works, 750 feet from mouth. Same, entry 2, 850 feet from mouth.	Same (run of mine)	Same (face 700 feet from entry, bituminous, 46-inch bed, 23-inch cut).	Same (face 700 feet from entry, splint, 46-inch bed, 23-inch cut).	Croton, NE. 4 sec. 2, T. 52 N., R. 76 W., Croton mine, 120 feet in, Felix bed, 11 feet, 6-foot cut.	Beheta, NW. 4 NE. 4 sec. 28, T. 52 N., R. 75 W., Beheta mine, 60 feet in, Felix bed, 15 feet from face of	cilletto, 1 mile west of, SW, 4 sec. 17, T. 50 N., R. 72 W., Barker mine, 150 feet m, Felix 29-foot	bed, 13-foot bench, 7-foot cut. 9 miles north of; NB. 4 sec. 10, T. 51 N., R. 72 W., Hulbert mine, open pit, Lower Ulm bed,	ast of; sec. 21 nof Stateline River, Powe	Rockefellor ranch, I mile cast of, T. 56 N., K. 72 W., 20±foot bed, a part sampled 7 feet. Present of the cast of	Hudson, see. 2, T. 2 S., R. 2 E., Indian mine, 600 feet down slope, west entry 3, 86-inch cut.	I mile south of; see, 28, T. 34 N., R. 98 W., Wyoming Central mine, 500 feet down slope, south entry	5 miles northwest of Mitchel mire, 240 feet in, room 1, 43-inch bed, 34-foot cut.	Lander, 5 miles northeast of; NW, ‡ SW, ‡ sec. 3, T. 33 N., R. 98 W., Big mine, 8-foot cut, 500 feet in.

a Known as the Rockefeller bed.

Table of chemical analyses—Continued.

nce.	Page of this bulletin.	1110	1110	1110	1111	1111	1112	1112		1112	1113	1113
Reference.	Bul- letin No.	316		:				341			381	
Calorific value.	British thermal units.		7,720	10, 350 8, 152 10, 367	12, 227 9, 920 11, 770 13, 020	6,080	10, 188	11,810 12,478			7,627	11, 965 7, 344 10, 030 12, 087
Calorific	Calo-		4, 290	5,750 4,529 5,759	6,793 5,510 6,540 7,230	3,378	, 6, 5, 5 88.83 88.83 88.83	6, 561 6, 932 6, 932			4,237	6,647 4,080 5,572 6,715
	Air-dry-ing loss.	6.3	25.3	14.2	10.4	22.4	10.4	80.3		25.3	22.9	20.5
	Oxy-							35.20 18.61 19.67			40.73	23.39 37.53 18.76 22.61
	Nitro- gen.										70,	8888
Ultimate	Car-							53.60 70.15 74.12			44.64	70.04 42.72 58.34 70.31
2	Hy- dro- gen.							5.95 4.37 4.62			6.53	5. 18 6. 04 5. 04
	Sul-	74.	13.88	.32		.59				.83	1.23	1.05
	Ash.	3.20	4.9	11.97	8.1 9.6	6.21	8.58	4.10		3.21	7.21	12. 47 17. 03
mate.	Fixed car-	35.81	48.46 38.1	51.0 35.69 45.38	53.53 47.7 56.4 62.5	29.27	42, 56 49, 98	28.00 36.66 38.74		34, 44	34.67 48.87	54, 40 27, 94 38, 16 45, 99
Proximate.	Vola- tile mat- ter.	38.09	51.54 36.5 46.0	49.0 30.99 39.40	46.47 28.5 34.0	30:41	34.01 39.94	44.42 44.30 57.98 61.26		33, 14, 47, 47.	29.05 40.97	45.60 44.81 54.01
	Mois- ture.	22.90	20.5	21.35	15.7	34.11	14.85	23.60		30.18	29.05	26.78
	Con- di- tion.		70-0	10 H 01	m = 0 m	-00	m-01	n → 01 m		-101	m 01	m <b>−</b> € €
Sample.	Kind.	ф	В	Э	В	ф	Д	щ		B	В	щ
	Lab- ora- tory No.	4355	*9131	9029	*9132	*9772	*9133	5816		6444	6470	6469
	Locality, bed, etc.	WYOMING—Continued.  FREMONT COUNTY—continued. Lander—Continued.  6 miles, northeast, of, SW, 4 SE, 4 sec. 33, T. 34	Liberty, 8 miles southwest of 30 miles northwest of Shoshone, see, 34. T. 6 N., R. 2 E., prospect		14 miles southwest of; sec. 20, T. 6 N., R. 1 E., 35 miles northwest of sheshone, Muddy Creek mine, 75 feet from entrance, 122-foot bed, 32-	Riverton, 15 miles southeast of, sec. 5, T. 2 S., R.: 6 E., Shipton mine, 45 feet from opening, 90-inch	30 miles northwest of; sec. 13, T. 3 N., R. 1 W., Kinnear mine, east entry 1, Kinnear bed,	Rongis, Barnett ett. 127 N., R. 89 W., 8 miles northeast of Lost Soldier's Creek, Speyer prospect, 6-foot cut.	JOHNSON COUNTY.	Barber, 15 miles north of: 8 miles south of Arvada, sec. 29, T. 53, N., R. 77 W., outcrop, Healy or	Buffalo, 1 mlord, 13-100 cut.  Buffalo, 1 mlortheast of, NE. 4 sec. 26, T. 51 N., R., 82 W., Mitchell mine, 20 feet north of foot of	slope (lower bench, 77-inch cut). Same (upper bench, 524-inch cut).

		10	9	9	N	111	, T.	N	h	<b>~</b>	00	 	~
1114	11 14	1115	1116	1116	1117		1117	1117	1111	1111	1118	1118	1118
381	188	341	Tko						341	341	341	341	341
7,582 10,525 12,118	7,997	8,246 10,285 12,199	6,053 11,194 8,372 11,318	12,515 7,526 10,501	11, 671 8, 275 10, 846 12, 431		7,783 11,012 11,972	10,926	12, 209	9,716	12, 285	12,832 8,861 11,551	12, 172 7, 618 10, 116 11, 684
4,212 5,847 6,732	6,205	5,714 6,777	3,363 6,219 6,219 6,288	6,953 4,181 5,834	6, 484 4, 597 6, 026 6, 906		4,324 6,118 6,651	6,070	6,733	6,398	6,825	7, 129 4, 923 6, 417	6,762 4,232 5,620 6,491
	20.6	2.0	18.6	22.2	12.2		24.3	24.0	9.9	6.6	7.1	10.0	15.0
38.95 19.57 22.53	39.46		23.41				40.87 20.95 22.78			33.16			
8.8.8	1.02		1.28				.89 1.26 1.37		1.32	1.27	L. 93		
43.84 60.85 70.06	46.22		37.96				45.09 63.80 69.36			69.88			
6.40	6.39		2.13				6.27 4.26 4.63		6.03	4.37	4.03		
1.03		. 72 . 91 . 1.08	1.18 1.18 1.61 1.82	.60			1.21	2.72	38.35	.95	.59	35.55	8,952
	6.48		45.92 7.07 9.56	7.19	9.73		5.67	5.72	3.44	4.39	3.39	3.91	10.11
	22.36 34.08 34.08	26.21 32.69 38.77	21.70 40.13 37.95 51.31				36.42 51.54 56.03	53.68	39.58	39.08 49.75	52.04	55. 15 37. 34 48. 66	51. 28 30. 02 39. 87 46. 05
	45.29 47.64 43.86		32.38 28.94 39.13				28.58 40.44 43.97	38.22	34.22	35.08 44.66	34.19	44.85 35.47 46.24	48. 72 35. 17 46. 71 53. 95
27.96	28.39	19.83	26.04	28.34	23.71		29.33		22. 76	21.45	20.38	23.28	24 70
	100-00		10000	es – €3	m-01m		H0100	-100	010	2400	0-07	n 01	∞±0;∞
<b>A</b> b	а р	д д	а да	В	м		Д	m	д	Д	М	В	Д
6410	6435	5319	*9149	*9145	*9183		6459	6461	5388	5387	5377	5382	5748
SW. 2, sec. 36, T. 51 N., R. 82 W., Munkre mine, 200 feet from foot of slope, 6-foot cut.	Examinon, almis solutiwes of 2.7 acc. 2. 1.02C. N. M. S. V., surface prospect, Healy bed, 10 feet 104 inches (upper part of bed, 304-inch cut).  Same (lower part of bed, 34-foot cut)		dy, surface prospect, T. 33 N., R. 83 W., entrance, 67-inch bed,		Powder River, 24 miles southwest of; sec. 14, T. 35 N., R. St W., 330 feet down slope from entry, 42-foot bed, 53-inch cut.	PARK COUNTY, a SHERIDAN COUNTY.	Arvada, NE. ‡ NW. ‡, sec. 21, T. 54 N., R. 77 W., Arvada mine (bed 103 feet, cut 103 feet, 100 feet in), Arvada bed.	Same (bed 103 feet; cut included lower half)	Carneyville, 1 mile east of; sec. 16, T. 57 N., R. 84 W., Carney mile, Carney bed (lower bench, 103-foot east).	Same (upper bench, 44-foot cut)	34 miles northeast of; S. 4 sec. 2, T. 57 N., R. 84 W., on Tongue River, Evans mine, 60 feet in,	13 miles northeast of 3 miles southeast of Decker, NB. 4 sec. 29, T. 58 N., R. 82 W., on Badger	Carroll, 14 miles north of; sec. 14, T. 54 N., R., S3 W., Betheurem mine (75 feet in, 64-inch cut).  Lower Ulm bed.

a Certain cities and towns now included in Park County are here listed under Bighorn County.

Table of chemical analyses—Continued.

nce.	Page of this bulle-tin.		1119	1119	1119	1120	1120	1120	1120	1120	1121	1121	1121
Reference.	Bul- letin No.		341	341	341	341	:	341	341	341			
Calorific value.	British thermal units.		8,903 11,822	12, 611 9, 002 11, 669	12,812 9,038 11,668	12,956 9,223 11,713	12,841 9,425 12,328	13, 187 9, 247 11, 912	12, 974 9, 266 11, 558	12, 528 11, 9, 009 11, 783	12,577 7,967 11,527	12, 526 9, 207 11, 270	12, 224 7, 862 11, 038 11, 819
Calorifi	Calo- ries.		4,946	7,006 5,001 6,483	7,118 5,021 6,482	7,198 5,124 6,507	7, 134 5, 236 6, 849	7, 326 5, 137 6, 618	7,208 5,148 6,421	6,960 5,005 6,547	6, 987 4, 426 6, 404	6,959 5,115 6,261	6, 791 6, 132 6, 566
	Air- dry- ing loss.		10.4	8.7	1-	6.3	15.80	8.1	7.0	6.9	24.4	8.7	24.0
	Oxy-gen.		36.09	20.03				32.73	35.55 25.55 25.55	20.37		31.84	20.67
	Nitro-gen.		1.07	1.51				1.19	1.08	1.46		1.05	
Ultimate.	Car- bon.		51.50	72.95				52.25	65.22 86.33	71.96		53.93	71.59
p	Hy- dro- gen.		6.24	4.96				6.32	4.56 5.86 5.86	4.94		5.66	28.2
	Sul-		0.39	1.58	1.38	222	1.56	1.16	1.09	1.88	1.23	1.34	1.52
	Ash.		4.71	6.88 8.92	7.71	6.91	4.98	6.35	6.21	4.82	5.51	6.37	4.71
mate.	Fixed carbon.		33.04	46.80 37.05 48.03	52.74 34.46 44.48	49.39 37.75 47.94	52.57 40.19 52.58	53.42	48.53 48.53	52.61 37.18 48.63	29.68 42.94	46.66 40.69 49.80	54.01 34.05 47.81 51.19
Proximate.	Vola- tile mat- ter.	ľ	37.55	43.22	47.26 35.30 45.57	50.61 34.08 43.28	47.43 31.28 40.91	43.76 31.85 41.03	# 18 8 4 1 8 8 5 1 1	47.39 34.46 45.07	48.19 33.93 49.09	53.34 34.64 42.40	45.99 45.58 48.81
	Mois- ture.		24.70	22.86	22.53	21.26	23.55	22.38	19.83	23.54	30.88	18.30	28.77
	Con- di- tion.		-01		m 01	m → c1	m-03	m e1 e	2-01	m 01	20-03	m=01	m –– ca ca
Sample.	Kind.		В	E	д	Ħ	щ	Д	я	В	В	В	м
	Lab- ora- tory No.		5381	5378	5379	5385	7591	5384	5383	5380	7374	8629	6460
	Locality, bed, etc.	WYOMING—Continued. SHERIDAN COUNTY—continued.	Dietz, sec. 34, T. 57 N., R. 84 W., Dietz No. 1 mine, 2,800 feet in, Dietz No. 1 bed (8 feet 7 inches	Dietz No. 4 mine, 600 feet in, Dietz No. 2 bed (8½-foot cut).	a mile south of; see. 3, T. 56 N., R. 84 W., Dietz No. 3 mine, 400 feet in, Dietz No. 2 bed (8±60t	1 mile east of; see 35, T. 57 N., R. 84 W., Dietz No. 2 mile, 2,000 feet in, Dietz No. 2 bed (8½-foot	Same (face south entry I, off new east entry, 714-inch cut).	14 miles north of; sec. 27, T. 57 N., R. 84 W., Dietz No. 5 mine, Dietz No. 2 bed (84 foot cut).	2 miles north of, NE. 4 sec. 22, T. 57 N., R. 84 W., C. foot prospect cut from Dietz No. 3 bed, 80	2 miles northeast of; sec. 25, T. 57 N., R. 84 W., Roland mine, 60 feet in, Roland bed (74-foot	Kendrick, 14 miles north of, sec. 13, T. 55 N., R. 78 W., Sweat's mine, Arvada bed (end of gangway,	9-foot cut). Same (40 feet from entrance, 9-foot cut)	NW. 1. Nw. 1, sec. 12, T. 55 N., R. 78 W., on Clear Creek, surface outcrop, Smith bed (10-foot cut).

1121 1121 1121	1121	1122	1122	1123	1124
341 261 341 261 341 261 341 488 488	341 48 341	341	341	341	341
7, 700 11, 050 12, 281 19, 796 13, 126 13, 126 13, 358 13, 358 13, 358	9,268 12,128 12,722 9,661	12, 23, 814 12, 238 12, 238 11, 912	12,039 12,049 12,049 12,086 12,085	8,824 11,599 12,605 10,598	11,898 11,898 12,446 11,131 12,479 11,432 12,240
6, 5, 7, 7, 7, 8, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9,	5,149 6,738 7,068 5,367 6,827	65,73 65,79 7,062 6,115 6,618	5, 080 6, 694 7, 048 6, 714 6, 714	6,444 6,444 7,003 5,888	6,833 6,833 6,833 6,833 6,833 6,833
5.0	9. 9. 9. 4.	0 °0 °0	9.5	8.1	6.9
39, 73 18, 34 20, 38 20, 38 32, 59 17, 12 17, 24		34.09 17.98		34. 56 17. 47 18. 99 31. 14 14. 52	13.465
1.31 1.32 1.32 1.32 1.32 1.32 1.32 1.32		1.03	H : 0 : 0 : 1	1.542	1.386
44.76 64.24 71.40 71.40 70.97 75.35 75.98		52.54 67.98 73.61		50.98 67.02 72.83 47.94 61.74	
6.36 4.29 4.77 4.77 6.39 6.39 7.32 7.32		6.14		6.49 5.47 4.13	
25.1.1.00 25	23.4.2.2.E.	+22288282	4.4.6.4.4		. 339 . 551 1.06 1.40 1.57 . 47 . 59
6.99 10.03 3.37 4.32 4.91 6.25 5.82 4.49	3.57 4.67 3.22 4.10	2.89 3.73 5.91 7.65	3.81 5.02 2.95 3.90	6.07 7.98 11.54 14.86	8. 19 10. 80 5. 29 6. 60
					25.15 29.42 29.42 29.42 28.76 43.45 51.93 51.93
30.77 30.73 30.92 30.92 30.92 30.92 30.63	44.85 47.58 37.98 49.70 52.14 44.98	46.91 37.27 48.17 50.03 34.78 45.00	37. 49 49. 40 52. 01 35. 79 47. 32	35.75 47.00 51.07 40.45	35.10 35.10 35.10 38.27 38.27 56.55 44.90 48.90
22.00 22.00 21.44 22.63	23.58	22. 63	24. 10	23. 93	24.12
	01 co ← 01 co ← 01	n → ot c → ot c			04040400
g < < 0 0	<b>m m</b>	д д	а а	я я	д д д
1368 1369 1479	5395	5393	5391	5545	5392
NE. ‡ SE. ‡, sec. 2‡, T. 55 N., R. 78 W., Wyoming Sinckeless shaft mine, Kendrick bed, 12-foot cut.  Monarch, 9 miles northwest of Sheridan, sec. 19, T. 57 N., R. \$4 W., Monarch mine, Monarch bed, about 1,600 feet from shaft.  Same  Same (lump, over 5-inch screen, 5 tons)	Same (3,000 feet in, Monarch 18-foot bed, near crop).  Same (3,000 feet in, Monarch 18± bed, under thick cover).	I mile northwest of; see, 24, T, 57 N., R. 85 W., Kennedy prospect, 100 feet in, Monarch 34-foot bed, fower ef-old bench.  If miles west of; see, 14, T, 57 N., R. 85 W., Masters mine, 30 feet in, Upper Masters bed, 58-inch cut.	2 miles northwest of, sec. 23, T. 57 N., R. 85 W., Kool mine, 150 feet in, Monarch bed, lower bench, 74 foot eut.  3 miles northwest of, sec. 12, T. 57 N., R. 85 W., Conable prospect, 150 feet in, Carney bed, 8-foot cut.	Sheridan, 3 miles north of; NW, 4NE, 4 sec. 10, T. 56 N., R. 48 W., Smith mine, 200 feet in, Smith bed 59-inch cut.  34 miles southeast of; SW, 4 NW, 4 sec. 7, T. 55 N., R. 83 W., Martin mine, 100 feet in, 58-inch cut	6 miles southwest of; sec. 3, T. 55 N., R. 85 W., north side Big Goose Creek, Black Diamond mine, 325 feet in, Monarch (?) bed, 12-foot cut. 64 miles southwest of; SE, 4 sec. 14, T. 55 N., R. 85 W., on Beaver Creek, Nelson mine, 650 feet in, Monarch (?) bed, 14+inch cut. 8 miles southwest of; S. 4 sec. 11, T. 55 N., R. 85 W., Moore mine, 150 feet in, Monarch (?) bed, 9-foot cut.

Table of chemical analyses—Continued.

ence.	Page of this bulletin.		1125	1126	1126	1126	1126	1126	1126	1126	1126	1126	1127	1127
Reference.	Bul- letin No.			341	341	341	381	381	381	381	381	341	341	341
Calorific value.	British thermal units.	,	8,761	12, 717	12,769	10,219	12,439	13,127 10,093 12,440	13,106 9,389 11,342	11,954 10,047 12,357	12,951 9,837 12,226	12,933 10,327 12,391	13, 122 10, 379 12, 231	12,901
Calorifi	Calo-		4,867	7,065 5,877 6,743	7,094	6, 410 5, 677 7, 045	7, 466 5, 507 6, 950	7, 293 5, 607 6, 911	7,281 5,216 6,301	6,641 5,582 6,865	7, 195 5, 465 6, 792	7,185 5,737 6,884	7,290 5,706 6,795	7, 167
	dry- ing loss.		17.3	3.6	5.8	6.1	15.6	6.2	13.1	13.1	14.5	6.1	3.7	6.2
	Oxy-gen.				15.22.22				15.87 32.33 20.57					
	Nitro- gen.			1.47	24.7	1.89	1.06	1.43	1.85	1.92	1.81	1.84	1.38	
Ultimate.	Car-			60. 27	72.76 58.96 72.65	70, 53	57.11	75. 64 59. 20 72. 97	76.88 56.22 67.91	71. 57 58. 45 71. 89	75.34 57.34 71.27	75. 40 59. 67 71. 59	75.81	
Ω	Hy- dro- gen.			5.21	4.2.4.	4.01			4.84 5.36 4.17		4.78 5.89 4.62			
	Sul-		0.61	85.2	248	32.3	. 45	4.8.2	35.55	4.4.2	. 37	28.58	88.8	.52
	Ash.		5.06	4.31	5.07	4.54	3.73	4.13	4.23	3.73	4.40	4.64		4.09
nate.	Fixed carbon.		38, 15	55.38 52.48 60.23	63.36 47.85 58.98	62, 13 45, 02 55, 87	59. 20 47. 12 59. 48	62, 42 48, 07 59, 25	58.23 58.23 58.23	61.40 48.35 59.46	62.32 47.85 59.47	62.91 49.56 59.46	62.97 47.88 56.42	59. 51 52. 49
Proximate.	Vola- tile mat- ter.		30.74	30.36	35.95	31.02	35.38 35.88 35.88	37, 58 28, 93 35, 66	37. 57 30. 32 36. 63	35.25 35.25 35.25 35.25 35.25	37. 68 28. 21 35. 06	37.09 29.15 34.97	37. 03 32. 58 38. 39	40. 49 29. 50
	Mois- ture.		26.05	12.85	18.86	19, 42	20.77	18.87	17. 22	18.69	19.54	16.65	15.14	13.92
	Con- di- tion.	ſ	-67	ಣಿಗಣ	200	∞c	10H01	es ⊶ es	10-0	0 H 0	ಣ್ಣಣ	0 H 0	es ⊢ es	80 H
Sample.	Kind.		æ	B	В	B	B	В	В	æ	B	Ħ	m	B
Ω.	Lab- ora- tory No.		6710	5952	5808	5811	7093	7170	7103	7007	7096	5930	5810	5951
	Locality, bed, etc.	WYOMING—Continued. sweetwater county.	Alkali Butte south of; sec. 25, T. 34 N., R. 95 W., Signor mine, south entry 1, 100 feet from	opening, 50-inch cut.  Black Buttes, sec. 16, T. 18 N., R. 100 W., Black Buttes mine (abandoned), 5½-toot cut, 250	feet in. 1 mile south of; sec. 20, T. 18 N., R. 100 W., Rock Springs-Gibraltar mine (150 feet in, 6½-foot	cut). Same (140 feet in, 4½-foot cut)	Same (70½-inch cut, 355 feet in)	Same (100 feet in)	Same (50 feet in)	Same (150 feet in)	Same (225 feet in)	3 miles north of; NE. 4 NE. 4 sec. 28, T. 19 N. R. 100 W., Rock Springs-Sioux City mine.	3 miles northwest of; I mile southeast of Hallville, see, 31, T, 19 N. R. 100 W. prospect pit (175	feet in, 5½-foot cut). Same (90 feet in, 6½-foot cut)

		23.	LI ZXI	INL	D 0.	1 0	OALA	3 114		111	01	1111	D 10	46444	2D.		011
1127	1127	1128	1128	1128	1128	1128	1128	1128		1128	1128	1129	1129	1129	1129	1129	1129
341	. 341	381				381	381	341		341	381	381	341	341		381	381
12,078 12,681 4,385 7,049	9, 104 8, 462 10, 879 12, 276	11,879	11, 144	13, 606 11, 455 13, 234	13,586 8,100	11,030	13, 972 10, 768	13, 068 13, 700 11, 513	13,324	5, 783	10, 195 9, 657 11, 866	12, 407	13,318	11, 290 12, 686 9, 853	12, 431 8, 334 9, 334	10, 379 10, 175 10, 175	12, 415 10, 413 12, 533 13, 068
6,710 7,945 2,486 3,916	5,058 4,701 6,044 6,820	6,044	6, 191	7,559 6,365 7,352	7,548	6, 128 6, 590 6, 590	7, 632	6,396 6,396	7,402	3, 213 5, 407	5, 00 cg 5,	6,893	5,399	5,045 14,048 14,474 14,474	6,877	5,57,400 5,653 653 653 653	6,897 5,785 6,963 7,260
28.0	7.3	11.5	12.4	9.1	17.3	4.9	9.4			26.8	15.0	1	2.8	ं	7.5	8.6	15.0
	33. 66 17. 88 20. 17	26. 13 14. 26	26. 16 14. 48	14. 91 25. 51 15. 67	16.08 39.46	3.53.5	15.85 16.12 27.17	24.68	14.27	52. 18 27. 12	28.5	20.02	28.15	388 388 388 388 388 388	23.55.25 23.55.25 25.25 25.	4838 4848	19.56 16.145 16.83
	38.88	1.29	1.30	1.58	1. 44	1.1.	1.30	1.06	1.53	1.58	1.28	22.5			1111		1.53
																	75.05 60.61 76.05 76.05
																	4.66 4.86 4.86
.63		1.10	1.10	1.13	1.13	5E.85	2521	1.37	1.18	.30	24.2	25.52	7.15	385	3.6.4.0	98.55	89.00
4, 75		4. 44	2.39	2.24			3.80	3.30	3.81	2.70	3.55	11.53		4.39			
54.02 22.30 35.85																	
34, 27 35, 98 25, 86 41, 58	5852	8 82 8	367	828	940	488	488	553	660	15	222	975	24.2	172	1564	38 40	26 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
37.80		15.91	15.71	13. 43	23.30	13.65	17.61	13.59		40.58	18.61	12. 43	16.61	16.01	14.26	13.96	6.93
8878	• • •		• •								-		• •		1 1	1 1	100 C100
щ	æ	<b>m</b>	B	В	m	B	n	m		m	m	n	<u>m</u>	m	В	B	<b>m</b>
5949	5817	7092	1602	6802	7090	5806	8534	5805		5826	2629	6795	5352	5351	7088	7095	7807
Creston, 4 miles west of. SE. ‡ SE. ‡ sec. 14, T. 20 N., R. 93 W., Latham prospect, 80-inch cut	20 N., ds nor	Gunn, NW. ‡ SE. ‡ sec. 8, T. 19 N., R. 104 W., Gunn- Quealy "B" mine, Upper Van Dyke bed,	Same (slope B, 800 feet in)	Same (80 feet in)	Same (10 feet in)	Same, 300 feet in, main slope, 6-foot cut	Same (Lower Van Dyke bed, 9½° slope, 1,100	, mine, 200 fe		Lost Soldier, 1½ miles east of; NE. ¼ NW. ¼ sec. 16, T. 26 N., R. 90 W., abandoned tunnel prospect,	Maxon, 4 miles east of; see. 25, T. 14 N., R. 104 W., abandoned mine (McCourt), 30 feet in 63-	12 N., R.	5	1. 20 N., 4t. 101 W., Fornt of tooks mine (375 feet in, Lower bed, 61-inch cut). Same (225 feet in, Upper bed, 64-foot cut)	Same (50 feet in, Upper bed, 63-foot cut)	Same (150 feet in, Upper bed, 86-inch cut)	Same (300 feet north, main heading, Upper 64- foot bed).

Table of chemical analyses-Continued.

			9			0	0		0	7		-	-	0	1	03		
ence.	Page of this bulle-tin.		1129	1100	717	1130	1130		1130	1131		1131	1131	1499		1132		<u>:</u>
Refer	Bul- letin No.		3×1	196		341	341		341	341		341	381		336		330	200
Calorific value. Reference	British (hermal units.		10, 220	12, 967	12, 461	11,833 12,937	13, 761	13, 921	9,385	12, 767	13,628	12,985	13, 035 11, 288 13, 048	13, 631	13,608	14,011	11 7.05	13,318
Calorifi	Calo-	:	5,678	7,204	6,923	6,574	6,280	7, 734	5,214	7,093	7, 571	6, 167	6,271	7, 573	7,560	1,184	6 520	7,399
	Alr- dry- ing loss.		21	1.2 6	19.0	60 61	oi oi		1.5	4.0		4.1	8.8			4.4	0.9	
	Oxy-		29.06	17. 42	16, 15	21.04	15.86	13.51	23. 78 15. 79	19. 13 25. 68	16.01						22 66	13.81
	Nitro-		1.24	1.57	1.49	1.30	827	1.38	.87	1.19	1.45						1 42	11.1.1
Ultimate.	Car- bon.		59.46	75. 44	72.65	66.15	76.93 63.76	38.55	53.95	61.47	76.46						30 99	74.78
7	Hy- dro- gen.		5.87	4.93	988	4 77.4 28.38		5. 47		4.0. 193	4. 4. 8. 8.						3	55.55
	Sul-		0.30	42.5	. 68	32.25	8.8.	1.11	1.01	1.37	1.23	20.1	24.5	1.73	66.	# 75 S	1.25	95
	Ash.	)	3.27	02 6	4.34	5.99	9.04	10.02	15.56	5.17	6.05	4.08	3.70	202.0		3.34	9.04	3.86
Proximate.	Fixed car-		49.30	62, 56	59.38	55.55 56.35 56.35 56.35	58.60 48.58	59.83	42.70	58. 10	58. 57	55.26	56. US	59.39	55.37	48.59	58.15	54.98
Proxi	Vola- tile mat- ter.		29. 51 35. 95	37, 44	36.28	35.60	32.62	36. 15	34.58	33.30	41, 43	34.17	33.62	40.61	41.75	34.97	41.85	41.16
	Mois-		17.92	200	10.00	8.53	9.76		10.94	14.43		14.51	13.51	10.01	17.41	13.10	11.64	11.04
	Con- di- tion.			(C) -	- 01 c	o — 01	ಣ ೕ	01 00	-01	es (	מיז נים	-22	20-0	1 co =	- 03	~ ~ c	4 co =	10100
Sample.	Kind.		22	~	2	~	~		~	B		~	B	4	4	<	5	ز
SQ.	Lab- ora- tory No.		7094	2100	201)	5358	5359		5357	5363		5361	5362	1010	1010	3165	2912	0170
	Locality, bed, etc.	WYOMING—Continued. sweetwater courty—continued.	Point of Rocks, Point of Rocks mine—Continued. Same (20) feet north, main heading, Upper 64- foot (20)	Come (1 000 foot month, main boarding at inch	cut, Upper bed).	Rock Springs, sec. 35, T. 19 N., R. 105 W., Union Pacific No. 1 mine, in room 66; No. 1 bed,	83-inch cut.  1± mile nearly east of: sec. 26, T. 19 N., R. 105 W.,	Sweetwater No. 2 mine, No. 7 bed, 55-1001	Same, Union Pacific old No. 5 mine, 20 feet in, No. 5 bed, 38-inch cut.	11 miles northeast of; sec. 25, T. 19 N., R. 105 W.,	No. 7 bed	Same, Union Pacific No. 8 mine, No. 7 bed, 90½-inch cut.	Same, Union Pacific No. 9 mine, No. 7 bed, in	Commentation Design No. 10 access Nr.	Rock Springs bed (5,200 feet north of slope,	Same (7,000 feet north of slope, 86-inch cut)	Course of mino)	some (tan or mine)

			22.41	11111		01	00.11	A 12			0 1 1 1		~ A. A. A.	L LLO.		U.
1132	1132	1133	1133	1133	1133	1133	1134	1134	1134	1135	1135	1135	1135	1136	1136	1136
341	3.1		341	341	341	341	381	381	381	381	381	341	341	341	381	138
11,525	13,754	12, 402	12,892 10,555 12,152	12, 796 12, 362 13, 588	12, 271	14, 053 12, 258 13, 583	14,119 7,828 9,765	8,201	11,486 10,463 12,078	7,891 10,411	10,946 11,111 12,785	8,120 8,711	8, 887 10, 296	5,960 8,086	11,362	12, 408 11, 126 12, 103 13, 689
6,403	7,641 6,791 7,673	6,791 6,791	7, 162 5, 864 6, 751	7,109 6,868 7,549	7,613	7,807	7,844	5, 920 4, 556 5, 767	6,381 5,813 6,710	7,438 4,384 5,784	6,081 6,173 7,103	7,603 4,511 5,395	5,720	3,311 4,492	7, 237	6, 181 6, 724 7, 605
3.4	1.1	9.1	6.1	5.7	4.0	3.5	11.2	13.7	×.	18.4	00	4.9	(c)	6.9	6.6	±
	13.58											8.5.25 8.7.25 11.55			24.83	15.44 15.44
1.30		1.20	1.35	1.64	1.32	1.22	68.8	1.04	33:1:49 51:1:33 51:1:45 1:33:1:45	1.47	2.23	22.1.5	1.22.0	1.49	1.30	1.45
	77.47 68.29 77.16											50.09 50.99				61. 70 67. 12 67. 12
	10.10.10.10 10.10.10.10 10.10.10.10.10.10.10.10.10.10.10.10.10.1				5.37	5.77	4189	88.38	4.0.0	8.55.55 8.55.5	5.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	5.4.5. 5.7.5. 5.7.5.	25.75	3.86		5.55.5
.86	8:5:8:	6.4.	844	55.55	20.00			1.38	188.	36.2	1.67	1.72	2000	1.062		1.25
3.19	1.83	4.42	4.37	88	56.5	3.43	6.70	7.60	8.48 9.79	3.70	5.72	8.21 9.81	3.42	16.21	2.49	10.64
49.80	550. 04	56.13	59.20	52.52 57.52 58.53 58.53 58.53	56.90	52.53	60.47 37.78 47.13	50.71	56.11 41.86 48.32	25.36	55.42	38.55. 28.62 38.62 38.62 38.63	51.68	35.23	45.01 49.94 57.26	42, 52 46, 25 52, 31
39.08	40.57	38.23	30.80 35.24	37.11 35.75 39.29	36.41	34.32	44.53.68 5.51 5.51 5.51	31.34	45.89 41.89 36.29	. <del>2</del> 25.4	44.58 35.55 40.91	43.79 43.99	44.38.28	31.28 42.43	39.89	25.76
13.01	11.50	14.91	13.14	9.01	10.46	9.75	19.84	21.00	13.37	24.20	13.10	16.39	13.69	26.28	12.78	8.08
H 01:	es ⊶ es e	2 H C3 €	ω−01 	es ⊢ es e	2-010		or − 010	2-01:				o → 01		· ·	<u> </u>	2-0100
æ	æ	æ	m	=	æ	g	д	m	A	A	2	<u>~</u>	m	m	m	<u>E</u>
5360	6772	6773	6042	5364	5365	5366	1229	6775	6774	1629	6239	5372	5373	5367	9629	6794
Same (room 11, north entry 6, 54-foot eut)	1 mile southwest of; sec. 2, T. 18 N., R. 105 W., Blairtown mine, 1,100 feet in, No. 3 bed, 53-	3 miles north of; sec. 22, T. 19 N., R. 105 W., old No. 6 mine, 300 feet in, main slope, No. 6 bed (63-	foot cut). Same (64-foot cut).	3 miles south of; sec. 11, T. 18 N., R. 105 W., No. 3 mile, end of entry 5, No. 7 12-foot bed, 621-	Same, No. 5 mine, dip slope 2, room 5, back entry, No. 7 bed, 73-foot cut.	Same, No. 4 mine, room 2, No. 7 bed, 742-inch cut.	3 miles southwest of; sec. 4, T. 18 N., R. 105 W., prospect pit, 50 feet in, 96-inch cut.	34 miles north of; sec. 10, T. 19 N., R. 105 W., prospect pit, 100 feet in, east of Interstate mine,	532-inch cut. Same, Interstate mine, 54 feet west by 40 feet south of opening, Interstate bed, 77-inch cut.	10 miles south of, sec. 14, T. 17 N., R. 105 W., Kappes mine, 40 feet in, 4-foot bed, 33-foot	cut. Same, Kent mine, 75 feet in, 3½-foot cut	11 miles northeast of; sec. 34, T. 21 N., R. 104 W., prospect pit (30 feet in, 43-foot cut).	Same (6 feet in, 4-foot cut)	12 miles north of; SE. 2 NE. 3 sec. 30, T. 21 N., R. 104 W., prospect pit, 3 feet in, 18-inch cut.	12 miles south of; sec. 24, T. 17 N., R. 105 W., Miller mine, 3½-foot bed, 41½-inch cut.	23 miles south of; sec. 13, T. 15 N., R. 105 W., Men- kinney mine, 43-foot cut, 43-foot bed.

Table of chemical analyses—Continued.

Reference.	Page of this bulletin.	1137	1137	1137	1137	1137	1138	1138	113	1133	1139	1139
Refer	Bul- letin No.	뛽	341	341	341	341	341	¥	341	341	341	341
Calorific value.	British thermal units.	11,360	13,394	13,860	11, 426	13,327	9,673		12, 161	13,426	7,796 10,492	7,681 10,048
Calorifi	Calo- ries.	7,267	7,475	7,700	6,348	6,321	6,582		6,756	7,929	4,331 5,829	6,4,6,6,2,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5
	Air- dry- ing loss.	7.7.	6.3	× ×	5.5	6.0	12.5	1.3	8.4.	5.6	10.7	9.3
	Oxy-gen.		13.45	13.52	13.93	12;2;2 28,88 28,88	18.22 18.22 18.33	21.00	20.85	4888 4811	28.5	25 E
2	Nitro-		1.19	1.43	1.09	2888	3888		1: 27	42.55 42.85	1.47	1.56
Ultimate.	Car- bon.		76.93	79.03	63.78	12.85 12.85 13.85 15.85 15.85 15.85 15.85 15.85 15.85 15.85 15.85 15.85 15.85 15.85	76.25	S	67.12	84.65.43 84.63.43 86.43	49.10 66.08	71. 79
	Hy- dro- gen.		2.44 2.90 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3	5.16	4.84	9282	1988	g : : :	5.03	5.527	3.5.5	3.38
	Sul-	1.15	1.40 27.2 88.3	1.08	3823	25.5	35161	28.69	98.	1.01 1.02 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03	38.8.	4.8.4.
	Ash.	4.91	3.36	5.09	4.87	3.54	1.64	3.82	4.24	5.20	5.91	5.49
mate.	Fixed car- bon.	48.87 56.27	59.04	57.70	3.02.82 \$.52.82	55.86 55.86	48.46 57.77	69.25	56.37	57.94	54.77	33.58 33.58 33.58
Proximate.	Volu- tile mat- ter.	33.07 38.08	85.55 84.75	83.58 87.58 87.58	36.32 36.32 36.33	34.14	46.85	32.57 37.03 38.50	34.79	8.25.25 8.25.25 8.25.25	37.38	4888 8821
	Mois-	13.15	13.67	13. 41	13.76	14.63	18,35	12.03	10.55	12.70	25.70	23.56
	Con- di- tion.	-010	~ - C1	m—010	m ⊶ 03 0	-c c3 c		o ← 01 co	-01	ಣಗಣ	20-01	eo ⊶ e₃ e
Sample.	Kind.	22	B	<	B	13	33	<	B	B	B	B
. 02	Lab- ora- tory No.	5596	2692	7474	5598	5786	60-43	7475	5926	5028	5597	5599
	Locality, bed, etc.	Superlor, sec. 20, T. 21 N., R. 102 W., Superior C mine, 1,400 feet in, 7½-foot bed.	Same, 1,845 feet in, main entry, 8-foot cut	Same, room 1, off north level 4, 1,500 feet northeast from drift mouth, 76-foot eut.	Same, Superior D mine, 380 feet in, 8-foot eut, No. 1 bed.	Same, 400 feet in, main drift, 8-foot ent, No. 1 bed.	Same, prospect pit on west side of valley, No. 3 bed, 7-foot cut.	Sec. 27, T. 21 N., R. 102 W., Superior A mine, face of dip room, off north entry 2, 800 feet northeast of entrance, No. 7 bed, 6-foot 21- inch cut).	Same, 64-foot cut in entry 2, No. 1 bed	Same, 1,000 feet in, main drift, No. 7 bed, 83- inch cut.	miles north of; NE, ‡ NE, ‡ see, 10, T. 21 N., R. 102 W., prospect pl. (60 feet In, lower 75 inches	of 883-inch bed). Same (50 feet in, 784-inch bed, 63-inch cut)

			22412		20	, - 0	01113									
1130	1140	1140	1140	1140	1141	1141	1111	1141	1141	1142	1142	1142	1112	1143	1143	1143
	341	341	341	341	341	341	341	341	341	341	341	341	341	3.41	341	341
	12,028 13,397	12,523	10,840	8, 055 10, 465	10,530	10,094 10,094	13,326	9,907	8,960	7,202	9,803	10,138	9, 497	8,422	10,067 9,272 10,782	9,050 11,488 11,738
	6,682			5,814			7,233		675		_		6,083			6,382 6,521 6,521
7.5	5.0	4.0	6.2	4.7	5.0	5.3	£.	15.9	م. ده	oc	6.1		1.6	CI.	50.57	15.3
	20.16	5.25.35	18.27 88.83		15.25	0	16.25			42.91	27.03	25.98	00.01			36.91 23.91
	997	 2 <u>#</u> #	8888	2998	38.25.5	20.1	1.38	7:47		1.00	L. 40	1.30				1.11.11.14.14
	74.40	61.92	62.29	55.55	61.31 70.99		64.54 74.19			63.10		59.45	0	: : :		54. 42 69. 08 70. 59
	77.	1233	1128	8848	34.82		4.37			3.29	£ ::	483	9 : :			5.56 4.15 7.15
1.08		88.83	3455	18.8	2885	1.05	1283	22.23	18:52		5.5°8	6488	1.10	202.	286.5	£ 24 
2,53	4.56	4.97	3.27	6.26	5.94	4.91	2,99	3.89	8. 71 9. 93	4.15	2.32	9.84	9, 02	11.72	3.68	2.13
12.73	56.58		69.69		5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	52.53	59.27	18.68	8888		20.23	: E 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	22.82.5	13.51		55. 60 55. 80 56. 81
975	3=88	821.88 821.88	3828	1821	555	600	8878	2000	1000	672	241	12024	280	589	¥ & & & :	42.27 43.30 43.10
12.94	10.33	13.81	16.02	23.03		17.38		28.01	12.28	26.82	17.71	13.34	13.27	11.49	14.00	21.22
-016	n — 01 0	;—; o⊣c≀c	: — : : — : :	0 03 0			-		; <u> </u>		: <u>-</u> :					n → 01 m
E E	m	n	<u>B</u>	n	m	A	B	B	B	В	Д	B	g	æ	g	<b>a</b>
10001	5785	8699	2696	5348	2699	5699	5694	5371	5950	5376	5370	5353	5347	5349	5368	5369
2 miles northeast of; sec. 29, T. 21 N., R. 102 W., B mine, No. 1 (upper) bed, near face of air	course, 100-inch bed.  2 miles south of, sec. 28, T. 21 N., R. 102 W., Superior B mine, 600 feet in, No. 7 bed, 6-foot cut.	5 miles northwest of; sec. 3, T. 21 N., R. 103 W., prospect pit (270 feet in, 964-inch cut).	Same (90 feet in, 10-foot bed, G-foot cut, damp)	6 miles northwest of; sec. 24, T. 22 N., R. 103 W., prospect pit, 15 feet in, 7-foot 10-inch cut.	64 miles northeast of; sec. 9, T. 21 N., R. 103 W., prospect pit, 250 feet in, 63-foot cut.	7 miles northwest of, NW. 4 sec. 8, T. 21 N., R. 103 W., prospect pit, 100 feet in, 54-foot cut, prob-	74 miles forthwest of sec. 5, T. 21 N., R. 103 W., prospect pit, 150 feet in, upper 5 feet of 6-foot	8 miles northwest of, sec. 12, T. 21 N., R. 104 W., prospect pit, 10 feet in, 53-inch cut.	9 miles northwest of; sec. 6, T. 22 N., R. 103 W., prospectpit, 20 feet in, 6-foot bed, 54-foot cut.	9 miles southwest of, sec. 34, T. 21 N., R. 104 W., prospect pit, 20 feet in, 5-foot cut from upper	part of bed, lower part of bed under water. 9 miles west of, see, 23, T. 21 N., R. 104 W., prospect plt, 20 feet in, 4-foot cut.	10 miles northwest of; sec. 6, T. 22 N., R. 103 W., prospect pit, 20 feet in, 58-inch cut.	11 miles northwest of; NE. ‡ NE. ‡ sec. 6, T. 22 N., R. 103 W., prospect pit, 20 feet in, 53-foot cut.	Same, 70-inch cut	11 miles west of, sec. 14, T. 21 N., R. 104 W., prospect pit, 100 feet in, 78-100 cut.	114 miles west of; sec. 10, Tr. 21 N., R. 104 W., pros peet pit, 20 feet in, 3-foot cut, damp.

Table of chemical analyses-Continued.

nce.	Page of this bulle- tin.		1144	1144	1144	1144	1144	1144	1145	1145	:	1145	1145
Reference.	Bul- letin No.		341	341	341	341	341	341	10	10		341	341
value.	British thermal units.		7,321	8,510 8,210	8,530 11,254 11,254	9,860	12, 891 12, 415	13,284 9,011 11,630	12,400	12,483	12,175	7,385	11,285 6,042 9,122 10,057
Calorific value.	Calo- tries.				6,868					6,935	-		5,088 5,088 5,587
	Air-dry-ing loss.		11.7	14.2	12.5	30.	9.7	10.7	1.4	1.4	4.	9.5	12.2
	Oxy- gen.		41. 62 24. 78	34.83	28.88 82.68	20.03.	30.80 15.98	35.00 19.34	20. 63		17.71	25.50	28. 46. 98 28. 04. 98 28. 04. 99
	Nitro-gen.		1.23	1.73	1.1935	1112	1.42	1.51	1.32		1.53	1.26	1.75
Ultimate.	Car-		47.16 63.96	37. 03 53. 96	63.30 67.30 67.30	58.74 68.90	72.54 55.97 70.25	75.17 52.44 67.68	72.17				66. 27 39. 29 59. 34 65. 42
n	Hy- dro- gen.				4 9 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5						5.53	3.5.26	3. 51 3. 51 3. 51
	Sul-		0.39	1.27	1.03		288.5	1.28	1.090	. 988	1.00	1.25	1.13 .64 .97 1.07
	Ash.		4, 14	10.12	4.67	5,02	5.21 6.54	4.82	2.84	2.63	4.59	4,54	6.15
nate.	Fixed carbon.		37. 47	28.53 42.93 12.12	49.41 53.75	57. 47 57. 47	54.03 54.03	57.79 41.83 53.99	57. 57 49. 46 54. 24	54.87	56. 50 48. 30 52. 87	55. 66 37. 74 51. 97	55. 43 30. 71 46. 37 51. 13
Proximate.	Vola- tile mat- ter.		32. 13 43. 58	46. 17 29. 60 43. 13	50.59 31.34 50.25 50.25	31.98 37.51	39.45 39.45	42. 21 30. 83 39. 79	42.88.43 42.90 65.93	42.85.2	43. 50 42. 11	44.34 30.34 41.78	29.35 44.33 48.87
	Mois-		26. 26	31.37	22.14	14.75	20.33	22. 52	8.80	9.03	8.64	27.38	33. 79
	Con- di- tion.		72	ಣ=ಣ	m → 01 c	10 H C1	n=0	0 H 01	ю <u>н</u> е	2010	20-0	10 H 20	m = 01 m
Sample.	Kind.		В	B	д	щ	B	g	ķ	V	Ö	B	Ħ
N	Lab- ora- tory No.		5350	5375	5374	5804	5803	5802	945D	946D	973D	5813	5809
	Locality, bed, etc.	WYOMING—Continued.  SWEETWATER COUNTY—continued.	Superior—Continued. 12 miles northwest of; sec. 34, T. 22 N., R. 104 W., prospect pit, 40 feet in, 44-loot cut.	12 miles west of; SW, ‡ NE, ‡ sec. 17, T. 21 N., R. 104 W., surface exposure, 4-foot cut.	124 miles west of, NW, 4 SE, 4 sec. 29, T, 21 N., R. 104 W., prospect pit, 53-loot cut.	13 miles northwest of; sec. 21, T. 23 N., R. 103 W., Hooten prospect (abandoned), 60 feet in,	Crookston bed, 5-foot cut. 15 miles northwest of; see 24 (7.23 N., R. 104 W., 11 ooten mine, 65 feet in, 8-foot bed (lower	3 feet). Same (upper 5 feet)	Sweetwater, Sweetwater mine, No. 7 bed, 7,900 feet north (entry 10, 6-foot cut).	Same (room off entry 4½, 71-inch cut)	Same (run of mine)	Sycamore, sec. 23, 'f'. 20 N., It. 102 W., outcrop in railroad cut: 4-foot bed, weathered.	1 mile west of; sec. 29, T. 20 N., R. 102 W., surface outcrop, badly weathered, 28-inch cut.

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1145	1146	1147	1147	1147	1147	1147	1145	1145	114s	1149
341	285 56 56	316	316	316	316	316	316	316	316	316
6, 790 9, 630 10, 327 7, 949 10, 314 10, 883	10,447 12,209 13,334 13,360 8,816 10,265 12,641	13, 226 8, 392 10, 363 12, 429	8,563 10,256 12,191	13,570	12,870 13,336 14,881	12, 031 12, 031 12, 031	8,932 11,392 12,492	12, 12, 13, 13, 13, 13, 13, 13, 13, 13, 13, 13	12, 937	13,532 12,155 13,043 14,042
3,772 5,350 5,737 6,046	5,804 6,783 7,408 7,422 4,898 7,023	6, 348 6, 757 6, 905 7.091	6,7,757	7,539	8,7,150 8,267 267	1,0,5,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0,0 1,0 1	6,329	2, 006 7, 613 8, 195	6,464 7,187 7,495	7,518 6,753 7,246 7,761 7,801
10.9	6.9	8.7	4j	3, 5	1.6	5.7	10.7	1.3	4.6	23
43. 42 26. 17 39. 65 25. 01 26. 39	26. 08 15. 48 16. 91 16. 97 13. 78 16. 96	18.11 29.38 15.40 18.47	26.85 17.61 53.37 53.37	11.03	12321	14.22	32.51 16.99 18.62	62.0.00 62.0.00 62.000 60.000	15.15.29	12. 42 12. 20 13. 07 13. 16
1. 10 1. 56 1. 67 1. 26 1. 63 1. 72	1.15 1.34 1.47 1.47 1.82 1.18	1.1.28	921-1-1	2888	1.01	1.52	1.36	3.7.8.8.3	.11.1	1.52
44. 50 63. 12 67. 68 48. 71 63. 20 66. 69	59. 97 70. 08 76. 54 48. 91 55. 95 70. 13	74. 92 59. 29 71. 13	20.02	74.15	69. 67 72. 19 80. 55	70.67 70.84 74.71	67.65 74.18	80.11 83.08	24.43 17.62 17.62	69. 45 74. 52 79. 82 80. 39
26.8.6. 20.92 20.03 20.03 20.03 20.03	7.4.4.4.7.4.7. 7.4.4.8.8.2.8.8.8.8.8.8.8.8.8.8.8.8.8.8.8						4.3.2.4.	4.0.0.0.1 8.0.0.0.0 8.0.0.0.0.0 8.0.0.0.0.0 8.0.0.0.0		44444 8888 8888 8988 8988 8988 8988 898
.37 .52 .56 .74 .96	. 21 . 25 . 27 . 4. 45 . 6. 38	3.85	4.35 5.21 6.19	288	1.06	3.56 4.16 4.38	. 99 1. 26 1. 38	75	38.	62 67 71
6.74	7. 22 8. 44 16. 15 18. 80	13.47	13. 25 15. 87	3, 12	10.02	5.18	6.90	3.44	3.70	6. 18
35.16 49.87 53.47 39.35 51.06 53.88	41. 54 48. 54 53. 02 34. 40 40. 05 49. 33	27.83 34.37 41.22	37. 57 45. 00 53. 49		50.59 52.42 58.49	48.73 56.89 60.00	42.34 54.01 59.22	56.59 58.75 60.92	53.30 59.27 61.80	53. 59 57. 51 61. 59
30, 59 43, 39 46, 53 33, 69 43, 71 46, 12	36.81 43.02 46.98 35.34 41.15 50.67	39.68 49.00 58.78	32.67 39.13 46.51	35.88 37.96 30.25	41.51	32, 48 37, 93 40, 00	29.16 37.19 40.78	36.30 37.68 39.08	32.94 36.62 38.20	33, 42 35, 86 38, 41
29. 50	14.43	19.02	16.51	5. 49	3.49	14.36	21.60	3.67	10.06	6.81
	-004-00	<b>→</b> → <b>0</b> 1 00 →	-0004		-0100	*~~	* ← C3 C5 → *	#-01m=	*-0101	4-004
д д	я я	m	m	B	A	æ	=	a	B	m
5814	2325	3892	3893	4303	4300	4006	1005	4299	4003	4302
3 miles northeast of; see, 16, T. 20 N., R. 102 W., prospect pit, 6 feet in, 3]-foot cut. 3 miles northwest of; sec. 18, T. 20 N., R. 102 W., prospect pit, 6 feet in, 19-inch cut.	Almy, SE. 4 sec. 30, T. 16 N., R. 120 W., No. 5 mine, 3,000 feet from mouth, room 5, entry 12, lower Sfeetof24-footMain.Almy bed. 7 miles morth of; NW. 4 sec. 33, T. 17 N., R. 120 W., Michigan-Wyoning mine, 40 feet in, Almy bod, 35-inch cut.	53	24 miles southwest of, NW. 4 SF. 4 sec. 31, T. 38 N., R. 113 W., Fall River bed, 3-foot surface cut, weathered.	13 miles southwest of, NW. 4 NW. 4 sec. 33, T. 37 N., R. 115 W., prospect pit, 54-foot bed,	14 miles southwest of, NE. 4 NE. 4 sec. 32, T. 37 N., R. 115 W., prespect pit on Willow Greek, 2-foot cut, weathered.	15 miles southwest of, SE. 4 SW. 4 sec. 32, T. 37 N., R. 115 W., prospect pit, 24-foot cut, venifiered.	164 miles southwest of; NW. 4 NE. 4 sec. 11, T. 36 N., R. 116 W., surface prospect on Willow Greek, 27-inch cut.	16 miles southwest of; SW. 4 NE, 4 sec. 11, T. 36 N., R. 116 W., 100-foot drift tunnel on Willow Creek, Gloot bed, 44-foot cut.	16 miles west of, SW. 4 SE. 4 sec. 1, T. 37 N., R. 116 W., prospect pit, 3-foot cut, weathered.	16 miles west of, SW. 4 SE. 4 sec. 1, T. 37 N., R. 116 W., prespect pit on Willow Creek (lower bed, 22-foot cut).

a No. 4,302 cut 40 feet below No. 4,301.

Table of chemical analyses-Continued.

Reference.	Page of this bulletin.		1149	1149	1149	1150	1150	1150	1150	1151	1151
Refer	Bul- letin No.		316	316	316	285	285	285	285	99	316
Calorific value.	British thermal units.		11,443 12,814 13,459	11,471	12,767 13,847 14,096	12, 267 13, 158 14, 063	12,964 13,664 14,362	12,784 13,579 14,126	12,366 13,140 14,279	13, 502 14, 058 14, 792	12,692
Calorifi	Calo- ries.		6,357	6,373	7,693	7,310	7,591	7,797	6,870	8,218 8,218 8,218	7,051
	Air-dry-ing loss.		6.0	3.0	3.6	2.6	1.3	2.0	2.4	1.4	2.5
	Oxy-		21. 97 13. 96 14. 65	17.60	20.52 15.25 15.25	12.23	11.15.11 12.11 12.11 13.	11:15:4	11.15.22	9.25	17.80
	Nitro- gen.		1, 45 1, 62 1, 71	2588	11111	1111	22222	1112	11111	3284;	1.06
Ultimate.	Car-		66. 18 74. 11 77. 84	78.56 65.52 70.39	7.5.25 2.26 2.26 2.26 2.26 2.26 2.26 2.26	74.03 79.12	79.51 76.89 80.82	80.22 20.22 80.20 80.20	68.48 72.77 79.07	26.29 26.29 26.29 26.29	70.62
	Hy- dro- gen.		.5.4.4. 4.65.88	4.5.4.7 20.03.0			0.00.00.00 4.00.00.00 4.00.00.00			3.7.4.7.7 2.7.283	. 5. 28. 25 25. 28. 28. 28. 28. 28. 28. 28. 28. 28. 28
	Sul-		0.78 .87	1.65	22.88	. 43 . 46 . 49	. 49 . 52 . 54	1.07	1.39		1.76
	Ash.		4.79	9.32	1.62	6.00	4.61	3.88	7.51	4. 77	3.55
nate.	Fixed car-		54, 35 60, 87 63, 93	51.86	54.33 58.92 59.98	47, 43 50. 88 54. 38	49.75 52.44 55.12	51.00 54.17 56.36	49.01 52.08 56.60	55.11 57.38 60.38	51. 52
Proximate.	Volatille matter.		30.67 34.34 36.07	31.91	88.88.69 89.25 20.02	39. 79 42. 68 45. 62	40.51 42.70 44.88	39. 49 41. 95 43. 64	37. 59 39. 94 43. 40	36. 16 37. 65 39. 62	38.05
	Mois- ture.		10.70	6.91	7.80	6.78	5.13	5.86	5.89	3.96	6.88
	Con- di- tion.		-00	4-0	2400	4-010	せるののっ	4 H O O	4-100	4-H000	4-12
Sample.	Kind.		А	щ	Д	В	м	В	Д	E	В
, ž	Lab- ora- tory No.		4301	4001	4323	2245	2284	2286	2287	2285	3572
	Locality, bed, etc.	WYOMING—Continued. UNIA COUNTY—continued.	Bondurant, prospect pit—Continued. Same (21-tootcut a, weathered.) Upper Frontier bed.	17 miles west of, sec. 11, T.36 N., R.116 W., surface prospect, 33-100t cut.	25 miles southwest of; T. 36 N., R. 118 W., surface prospect of John Day River, 3-foot cut, weathered.	Cumberland, 1 mile west of; sec. 31, T. 19 N., R. 116 W., Cumberland No. 1 mine, 2,100 feet west and 2,000 feet south of mouth, south entry 7,	Main Kemmerer bed, 8-foot cut. Diamondville, sec. 25, T. 21 N., R. 116 W., No. 1 mine, 160 feet west and 3,460 feet north of mouth, room 45, entry 1, Main Kemmerer bed, 63-	Frontier, sec. 12, T. 21 N., R. 116 W., Kemmerer No. 1 mine (850 feet in, Lower or A (64-foot) bed, 40 feet below main bed, 72-inch cut).	Same (600 feet west and 2,850 feet south of opening, room 46, south entry 3, 9-foot cut). Main Kemmerer bed.	5 miles north of; SW, ½ NW, ½ see, 19, T, 22 N., R. 115 W., Willow Creek opening, 150 feet from mouth, Willow Creek bed, 3-foot cut.	12 miles north of, SW. 4 NW. 4 sec. 2, T. 23 N., R. 116 W., Willow Creek mine, 77-inch cut.

1011	11511		11511	1152	1152	1152	1153	1153	1153	1154
316	2 <b>28</b> 22	33.5	285	316	316	316	316	316	26	285
14,170 14,371 6,647 8,134 11,531	10, 237 12, 888 13, 329		13, 293 9, 792 13, 613	13,169	12, 584	13,091 9,063 11,513 12,229	12,256 11,419 12,434	10,323 10,323 11,594	11,704 11,349 12,184 14,279	12, 537 13, 408 13, 556
7,872 7,984 3,693 4,519 6,406	5,687 7,160 7,405	5, 726 7, 069 7, 352	7, 385 7, 440 7, 281	7, 316 6, 666 7, 374 7, 785	~ @ @ !-!	7,273 5,035 6,396 6,794	6,344 6,908 6,908		6,302 7,933 933	
7.9	10.2	11.3	14.8	3.1	5.5	12.8	10.4	17.2	2.6	6.7
13. 04 13. 30 28. 90 15. 48 21. 95		29. 62 15. 72 16. 35	16. 44 17. 66 18. 34	21.15 13.96 14.75	28.36 18.48 19.15	19.28 34.57 19.89	32. 77 18. 36 19. 99	23.56	15. 57 10. 17 11. 93	12. 07 29. 39 15. 29 16. 37
1.11 1.13		1.21	1.13	1. 34 1. 34 1. 56	1.26	1.16	1:30	2.1.1.	::::: ::::::::::::::::::::::::::::::::	1.25
78. 84 80. 42 42. 03 51. 43 72. 91		59.38 76.24	52.25.5 5.25.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	78.38 78.16 10.40	13.125 13.25 13.25 13.25	72.83.73 72.25 72.25 73.25	72.83.7 72.89.83.4	61.35 68.89	88.33 80.16 11.04 11.04 11.04	75. 53 76. 63
5.05 5.15 2.15 3.63		6.41	30.58.88 50.58.88	8.7.4.7. 8.8.90 9.1.6	6.54.4. 8.8.4.7.			4.0° 0° 4.0° 4.0° 4° 4° 4° 4° 4° 4° 4° 4° 4° 4° 4° 4° 4°		6.38 6.13 5.29 5.38
1.96	542	85488	.64 67	35	.70	30	57	1.29	1.01	1.46
24.08	3,31		3.76	5.28	3.40	5.86	6.49	7.97	13.67	5.26
34.46 42.17 59.77		53.09 53.09 50.92 52.95	53.82	46. 92 51. 90 54. 79	49. 06 57. 06 59. 07	39.27 49.88 52.99	42. 43 53. 32 58. 06	34. 54 47. 44 53. 27	43.86 47.08 55.18	38.80 47.99 51.33
42. 48 23. 19 28. 37 40. 23	36. 31 45. 71 47. 27 35. 91	45. 39 46. 91 45. 23 47. 05	34. 50 44. 44 46. 18	38. 71 42. 82 45. 21	34.00 39.54 40.93	34.84 44.26 47.01	30.65	30.30 41.61 46.73	35. 62 38. 24 44. 82	36. 79 45. 50 48. 67
18.27	20.57	19.00	22.37	9.60	14.02	21.28	20. 43	27.19	6.85	19.15
© 44 ≒ 64 €		7070707	4-0100-	4-0100	4-100	4-100	4-0100	4-10300	4-000	4-004
<u>~</u>	< <	Ö	E	В	В	ш	В	B	М	м
4002	3202	3390	2283	3891	3778	3890	4004	4000	2212	2211
Jackson, 6 miles south of; SW. 4 NE. 2 sec. 34, T. 40 N., R. 116 W., surface prospect on east side of Stake River, south of Game Creek, 17-	Kemmerer, 5 miles west of, NE. 4 SW. 4 sec. 20, T. 21 N. R. 116 W. Adavillo mine, 83-foot bed, 12- foot ent (130 feet morth of drift opening). Same, 11-foot cut (180 feet north of drift open-	ng).º Same (run of mine)	Same (84-foot bed, sample represents less than half the thickness of bed).	Merna, 14 miles west of: NW. 4 SE. 4 sec. 33, T. 34 N., R. 115 W., 20-foot drift in Yellowstone Forest Reserve, 74-inch cut.	18 miles southwest of; SE. 4 SE. 4 sec. 34, T. 33 N., R. 115 W., Lander Peak surface prospect, 2-foot cut, slightly weathered.	19 miles west of, NW, ‡ SE, ‡ sec. 2, 7, 34 N., R. 116 W., Wyoming Range prospect, 105-foot cut, weathered.	19½ miles west of; NE. ‡ NW. ‡ sec. 35, T. 35 N., R. 116 W., surface prospect near southeast corner of tract, 4-foot cut.	20 miles west of: NE. 4 NW. 4 sec. 35, T. 35 N., R. 116 W., surface prospect near northwest corner of tract, 6-foot cut.	Spring Valley, 34 miles northeast of: NW. 4 sec. 12, T. 15 N., R. 118 W., Richardson mine, 150 feet west and 50 feet north of opening, Spring Vell., 13, 4, 6, 6, 6, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10	4 miles northwest of; #1000 cut, 4 sec. 8, T. 15 N., R. 118 W., Lazent mine, 15 feet from opening. Adaville (30-foot) bed, upper 13 feet of bed.

a No. 4302 cut 40 feet below No. 4301. b Sample 3202 taken below 3203; the two samples combined represent a thickness of 23 feet in middle section of 83-foot bed.

Table of chemical analyses—Continued.

Reference.	Page of this bulle- tin.		1154	1154	1154	1155	1155	1155	1156	1156
Refer	Bul- letin No.		316	316	316	316	316	316	316	316
Calorific value.	British thermal units.		5,845 9,090 10,278	10,341 6,601 10,516	6,322 10,141 10,141	12, 091 12, 091 12, 919	2,041 12,757 13,181	13, 273 9, 637 12, 427	13,144 6,160 9,769	8,895 10,897 11,358
Calorifi	Calo- ries.		3,247 5,050 5,710	2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,	5, 53, 516 5, 634 634 634	6,399	7,7,7,7,7,7,7,883	7,374 6,359 7,176	, w, 4, w, 1	6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,
	Air- dry- ing loss.		22. 6	18.1	21.3	10.6	12.7	11.6	19.3	16.5
	Oxy-		47.65 24.76 28.00	28.26 24.23 28.25 28.25	30.48 33.14 33.14 33.14	31.38 17.34 18.53	33.77 17.38 17.96	33.26 17.22 17.92	28.32 28.33 1.83 1.83 1.83 1.83 1.83 1.83 1.83	22.94 % 22.94 % 25.94 %
	Nitro-gen.		.87 1.35 1.53	1.05	1.07	1.297	1.22	1.27	1.25	11.28
Ultimate	Car-		37. 16 57. 79 65. 34	66.02 64.46 64.46	62.88.29 61.38.29	55. 47 69. 01 73. 74	72.27 72.27 74.68	75.55 70.56 73.28 13.18	28.61 54.40 61.23	66.23 69.29 69.01
	Hy- dro- gen.		6.31 3.64 4.11		4.7.8.8.9. 5.0.8.8.7.				28.11.00	2.0.0.4.4 2.0.0.0.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.
	Sul-		0.58		27.	1.02	95	1.86 2.40 2.49	1.35	.57
	Ash.		7.43	9.67	5.41	5.16	3.22	3.88	7.92	3.02
mate.	Fixed carboon.		28.02 43.57 49.27	31.77 43.86 50.61	31.60 46.59 50.63	42.51 52.89 56.51	40.14 52.08 53.81	38.84 50.04 52.06	31.72 44.69 50.30	37.61 50.51 52.65
Proximate.	Vola- tile mat- ter.		28.85 44.87 50.73	31.00 42.79 49.39	30.81 45.43 49.37	32.71 40.69 43.49	34.46 44.70 46.19	35.77 46.08 47.94	31.34 44.15 49.70	33.82 45.43 47.35
	Mois- ture.		35.70	27. 56	32.18	19.62	22. 92	22.38	29.02	25. 55
	Con- di- tion.		01 60	4-00	4-000	4-0100	4-0100	4-010	4-0100	4-01004
Sample.	Kind.		В	щ	В	B	m	13	Ħ	m
ďΣ	Lab- ora- tory No.		3695	3700	3694	3699	3698	3693	3697	3696
	Locality, bed, etc.	WYOMING—Continued. UNTA COUNTY—continued.	Stanley, 8 miles south of; NE. 1 NW. 4 sec. 1, T. 28 N., R. 114 W., prospect pit, 24-loot cut.	84 miles south of; SW, 4 NW, 4 sec. 1, T. 28 N, R. 114 W, 210 feet in, prospect tunnel, 34-foot cut.	9 miles south of, SE. 4 SE. 4 sec. 12, T. 28 N., R. 114 W., (prospect pit, 50-inch cut, weathered).	Same, Grigg's prospect (125-foot drift, 8-foot cut). Labarge Mountain bed.	Viola, 2 miles northeast of; SE, § NW. § sec. 7, T. 26 N., R. 113 W., Sayley mine, 180-foot drift, 6-foot cut.	4 miles northeast of; SE. 4 SW. 4 sec. 33, T. 27 N., R. 113 W., prospect pit, 84-foot cut.	5 miles northeast of; SW. 1 NE. 2 sec. 29, T. 27 N., R. 113 W., surface opening, 3½ foot cut. Labarge Mountain bed.	12 miles southwest of, SW. 4 SW. 4 sec. 17, T. 25 N., R. 115 W., prospect pit, 3-foot cut, weathered.

1156	1156	1156			7511	1157
316	261	290 290 290	0,			
12, 692 13, 757 14, 429 14, 485	9,709 10,624 13,970	10,001	14, 231 10, 247 10, 247 13, 946 11, 333	13,765 11,516 12,773 14,071 9,565	13, 300 10, 622 12, 775 13, 585	
7,051 7,643 8,016 8,047	5,394 5,902 7,761	5, 556 6, 101	5, 320 5, 320 5, 320 7, 748 6, 296	7,647 6,398 7,096 7,817 5,314	7,389 5,901 7,097 7,547	
3.9	4.7	8 73	4.6	7.2	12.6	15.3
17.27 11.26 11.82 11.87		16.16	11.00 12.00 12.00 11.00 11.00	13.59 18.82 11.17 12.30 10.61	14.76 26.96 14.42 15.33	
1.13	. 65 . 94	88.	11.22.22.23.23.23.23.23.23.23.23.23.23.23.	65.88.88. 65.88.88.	1.01	
71.51 77.51 81.30 81.73			54.75 54.75 74.51 60.73			
5.33 5.08 5.11		4; 4; 7 80 C1; 80 C2;	4.5.7.4.4.5.5.4.4.5.5.4.4.5.5.4.4.5.5.4.4.5.5.4.4.5.5.4.4.4.5.4.4.5.4.4.5.4.4.4.5.4.4.4.5.4.4.4.5.4.4.4.5.4.4.4.5.4.4.4.5.4	7.4.7.4.6. 0.00.00.4.6. 0.00.00.00.00.00.00.00.00.00.00.00.00.	5.21 6.33 5.36	
955	4.94 5.40 7.10	4.4.0.4.4.1 8.17.0.8.8.8		044.000 2483114	2.6.4.4.1. 2.2.5.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	8666834458 8666834458
4.30	23.96	20.97 23.10 20.79 22.83	24.78 26.52 15.19 17.67	8.31 9.22 24.16 28.08	5.96 5.96 31.82	
57.78	32.37 35.42 46.58	33.72 37.15 48.31 37.07				59.37.84 25.53 37.84 37.84 37.84 39.69
34.65 37.56 30.39	37.13 40.62 53.42	36.08 39.75 51.69 40.10				26.73 26.73 26.73 26.73 40.69
7.74	8.60	9.23	6.55	9.84	16.85	20.42
व्यक्त			04-010-01	0-010-01	ю <u>н</u> 6100-16	10000000
Д	4	ر ب ر	υ υ	ပ ရ	д д	д д
3570	1376	1377	6790	6793	6746	6747
11 miles southwest of; NE. 4 SE. 4 sec. 16, T. 25 N., R. 115 W., prospect pit, Willow Creek bed, 44-foot cut. WESTON COUNTY.	Cambria, sec. 29, T. 46 N., R. 61 W., Lakota Sandstone froom 7, northwest, Anticlope No. Imine, 583-inch ent; room 6, off northwest entry 3, Anteliope No. 3 mine, 583-inch eut; composite	sample). Same (roon 9, off northwest entry 8, Jumbo mine, 624-inch cut). Same (run of 3 mines from same tipple)	Antelope mine No. 3 (splint or bony coal)	Samo (picked sample of best coal from mine cars).  Horton, 7 miles west of; SE. 4 sec. 31, T. 48 N., R. 62 W., Holwell prospect No. 1, 55 feet in (14-loof cut).	Same (24-foot cut)	Same (55 feet in, 9-foot cut)

